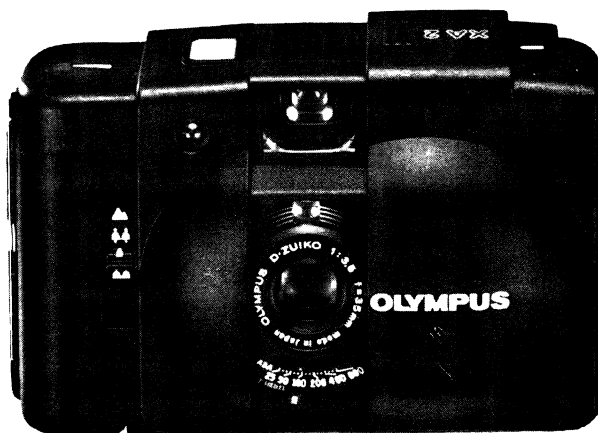




OLYMPUS XA2 REPAIR MANUAL

INDEX

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OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN

**PARTS LIST
AND
EXPLODED PARTS DIAGRAM**

EXPLANATION OF MARKS

- ① Indicates parts that are supplied both as a single piece and as an assembled unit. In the latter case, the single part is incorporated in the assembled unit indicated with the mark ①.

Exception: Parts in the mark () are not supplied in single pieces.

(Parts that are supplied only in single pieces are not indicated with any mark. While parts that are supplied as an assembled unit are prefixed with "Z" or "U".)

-] Several types of parts for the same position are available, from which most suitable one is to be selected.

- * 3 Parts differ according to different models and types. This mark is used to indicate various combinations in a picture.

- ⌀ Left-handed screw. The mate screw hole is not marked particularly.



Indicates parts that should not be touched directly by bare hand because special surface treatment is applied. Wear fingerstalls or use tweezers.



Not supplied as a repair part.



Used exclusively for black finish models.



Indicates original parts. New, modified ones are not indicated with this mark. Both original and modified parts are supplied.



No more available parts due to design change or out of stock.



A correction mark. Parts with this mark are not available.



Modified parts that are unable to show in the technical manual. The figure indicates reference page number.

- 2-A3 This notation is entered in the "Remarks" column of parts list and indicates parts position in the technical manual.

2-A3

→ Parts position. The technical manual is divided into 16 equal sections. Each section can be identified by using A, B, C and D from left to right and 1, 2, 3 and 4 from top to bottom.

→ Indicates page number in which the technical manual appears. However, 1/1 (page 1 of 1) is not indicated particularly.

OLYMPUS XA2

PARTS LIST

LEE23 1/5

<u>PARTS NO.</u>	<u>NAME OF PARTS</u>	<u>NOTE</u>	(Q'ty used/ per unit)
CA752900	SPOOL A	2 - A3	(1)
CA873000	PIN	1 - C1	(1)
CE301000	P RUBBER	1 - B2	(1)
CE301600	KEY MOLT	1 - C2	(1)
CE301700	SHAFT	1 - A3	(1)
CE301900	LIGHT PROOF	1 - A3	(1)
CE302000	SCREW	1 - B3	(3)
CE302100	SELF LEVER	1 - B4	(1)
CE302600	SELF CONTACT	2 - A4	(1)
CE303000	SELF CLICK	1 - B4	(1)
CE304000	REAR MOLT	1 - A2	(1)
CE304100	SHEET	1 - C2	(1)
CE304300	STRING U	1 - A2	(1)
CE304400	STRING D	1 - A3	(1)
CE305100	M KEY COVER	2 - D3	(1)
CE305300	M KEY SPRING 2	2 - D3	(1)
CE305700	AS NUT	1 - C2	(1)
CE306600	SYNTHETIC LEATHER L	2 - D3	(1)
CE306800	LIGHT PROOF L	1 - C2	(1)
CE306900	LIGHT PROOF R	1 - B4	(1)
CE307000	LIGHT PROOF L	1 - C3	(1)
CE307100	L MOLT	3 - A2	(1)
CE307200	FN SHEET	1 - C3	(1)
CE309700	K ROLLER	1 - B1	(1)
CE309900	K NUT	1 - C2	(1)
CE311000	S SHAFT STOPPER	2 - A1, 2 - A4	(2)
CE311500	SPRING	2 - A1	(1)
CE311800	S SPRING	2 - A3	(1)
CE312100	SP SHAFT	2 - C4	(1)
CE312400	U PLATE	2 - B4	(1)
CE312500	SP SPRING 2	2 - C4	(1)
CE312700	SP GEAR 1	Diameter: 8.2	(1/5)
CE312800	SP GEAR 2	Diameter: 8.05	(1/5)
CE312900	SP GEAR 3	Diameter: 7.9	(1/5)
CE313000	SP GEAR 4	Diameter: 7.78	(1/5)
CE313100	SP GEAR 5	Diameter: 7.64	(1/5)
CE313200	SP SCREW	2 - C3	(1)
CE313500	SPROCKET	2 - C4	(1)
CE313600	SP WASHER	2 - C4	(1)
CE317100	R KNOB WASHER	1 - B1	(1)
CE317700	R KNOB	1 - B1	(1)
CE319100	R LEVER SPRING	1 - B1	(1)
CE320500	FLOAT PIN	3 - B3 ϕ 2.47	(1/5)
CE320600	FLOAT PIN	3 - B3 ϕ 2.48	(1/5)
CE320700	FLOAT PIN	3 - B3 ϕ 2.49	(1/5)
CE320800	FLOAT PIN	3 - B3 ϕ 2.50	(1/5)
CE320900	FLOAT PIN	3 - B3 ϕ 2.51	(1/5)
CE324600	FC WASHER	3 - B1 t 0.4	(4 ~ 8/9)
CE324800	FC WASHER 08	3 - B1 t 0.08	(0 ~ 4/4)
CE324900	FC WASHER 03	3 - B1 t 0.3	(4 ~ 8/9)
CE325000	FC WASHER 03	3 - B1 t 0.03	(0 ~ 4/4)
CE325100	FC WASHER 05	3 - B1 t 0.05	(0 ~ 4/4)
CE325300	FC WASHER 10	3 - B1 t 0.10	(0 ~ 4/4)

OLYMPUS XA2

PARTS LIST

LEE23 2/5

<u>PARTS NO.</u>	<u>NAME OF PARTS</u>	<u>NOTE</u>	(Q'ty used/ per unit)
CE326900	FC WASHER 15	3 - B1 t 0.15	(4 ~ 8/9)
CE327000	FC WASHER 25	3 - B1 t 0.25	(4 ~ 8/9)
CE327100	FC WASHER 35	3 - B1 t 0.35	(4 ~ 8/9)
CE333200	HOLE COVER	2 - B3	(1)
CE335300	WASHER	3 - A1	(3)
CE336200	BUZZER	1 - C2	(1)
CE338000	C SHAFT	2 - B1	(1)
CE338100	C GEAR	2 - B1	(1)
CE338600	WASHER	2 - B1	(1)
CE338700	S UPPER HOLDER	2 - A2	(1)
CE339000	S SHAFT	2 - A2	(1)
CE339100	S GEAR	2 - A4	(1)
CE339200	E RING	2 - A2, 2 - A3	(2)
CE339300	SPOOL HOLDER	2 - A2, 2 - A3	(2)
CE339500	C SPRING	2 - B1	(1)
CE340500	FRONT COVER	1 - D2	(1)
CE341100	HINGE	1 - A3	(1)
CE341200	NUMBER PLATE	1 - A3	(1)
CE341300	M KEY	2 - D1	(1)
CE341400	SPRING	2 - D1	(1)
CE341500	LOCK PLATE	2 - D1	(1)
CE341700	R SHAFT HOLDER	2 - D1	(1)
CE341800	R FORK	2 - D1	(1)
CE341900	R SPRING	2 - C1	(1)
CE342000	SP HOLDER	2 - B4	(1)
CE342100	STOPPER	2 - B4	(2)
CE342200	SP SPRING D	2 - B4	(1)
CE342300	BATTERY LID	1 - C4	(1)
CE342500	SELF SHAFT	2 - A4	(1)
CE343800	SPRING	3 - D2	(1)
CE344200	RELEASE RUBBER	1 - B2	(1)
CE344600	K CLICK	1 - C2	(1)
CE344700	COUNTER COVER	1 - B1	(1)
CE344800	F.W. COUNTER	2 - B1	(1)
CE344900	AS COVER	3 - A3	(1)
CE345000	AS RING	3 - A3	(1)
CE345100	AS CLICK	3 - C2	(1)
CE345500	F CLICK	3 - C2	(1)
CE345800	ZONE MARK PLATE	1 - C3	(1)
CE345900	LEVER	3 - C3	(1)
CE346000	COLLAR	3 - C3	(1)
CE346100	SPRING	3 - C3	(1)
CE346500	ASA CLICK	3 - B4	(1)
CE346600	FASTENING RING	3 - D4	(1)
CE346700	FOCUSING RING	3 - B3	(1)
CE346800	FLOAT LEVER	3 - B3	(1)
CE346900	AS SPRING	2 - D2	(1)
CE347400	AS SWITCH	3 - C2	(1)
CE347500	K SWITCH	3 - C2	(1)
CE347800	SELF BASE PLATE	2 - A3	(1)
CE347900	U SWITCH	2 - C1	(1)
CE348000	AS SCREW	3 - C2	(1)
CE348200	VR RUBBER	2 - B2	(1)
CE348800	FLOAT SPRING	3 - B3	(1)

OLYMPUS XA2

PARTS LIST

LEE23 3/5

<u>PARTS NO.</u>	<u>NAME OF PARTS</u>	<u>NOTE</u>	(Q'ty used/ per unit)
CE349100	F UPPER COVER	2 - C1	(1)
CE349200	F PLATE	2 - B2	(1)
CE349400	F FRAME	2 - B2	(1)
CE349500	SHEET	2 - C4	(1)
ZK735300	S PLATE ASS'Y	3 - A2	(1)
ZK735900	AS SCREW ASS'Y	1 - D3	(1)
ZK741700	REAR COVER ASS'Y	1 - A2	(1)
ZK741800	R LEVER ASS'Y	1 - C1	(1)
ZK743000	R BUTTON ASS'Y	2 - C4	(1)
ZE126600	BODY ASS'Y	1 - C3	(1)
ZE126800	F.W. BASE ASS'Y	2 - C1	(1)
ZE127000	PRESSURE PLATE ASS'Y	1 - A2	(1)
ZE127100	F BODY ASS'Y	2 - C2	(1)
ZE127200	TOP COVER ASS'Y	1 - C2	(1)
ZE127320	AMP. BOARD ASS'Y	3 - A1	(1)
ZE127400	SHUTTER ASS'Y	3 - B3	(1)
ZE127500	FOCUSING LEVER ASS'Y	3 - A3	(1)
ZE127620	LENS HOUSING ASS'Y	3 - B4	(1)
ZE127900	REAR COVER ASS'Y	3 - A2	(1)
ZE128000	ASA RING ASS'Y	3 - D4	(1)
ZE128100	AS PLATE ASS'Y	2 - D2	(1)
ZE128200	FRONT PLATE ASS'Y	1 - D4	(1)
ZE128400	BOTTOM PLATE ASS'Y	1 - B4	(1)
ZE128600	AS CONNECTOR ASS'Y	1 - D3	(1)
ZJ141000	S UPPER PLATE ASS'Y	2 - A1	(1)
ZJ141100	B CONTACT M ASS'Y	2 - D3	(1)
ZJ141200	B CONTACT P ASS'Y	2 - C4	(1)
ZJ141300	BUTTON BASE	1 - B2	(1)
ZJ141400	BUTTON	1 - B2	(1)
ZJ141500	SUS BASE PLATE	3 - A1	(1)
EP0018	CdS	3 - C3	(1)
ED0102	LED	3 - B3	(1)
ED0114	LED	2 - B2	(1)
LC410900	OBJECT LENS	2 - C2	(1)
LC411000	M LENS	2 - C2	(1)
LC411100	EYE PIECE LENS	2 - B2	(1)
SC0165	CONTACT BASE	3 - C1	(1)
SC0167	INSULATION WASHER	3 - C1, 3 - B3	(2)
SC0168	SCREW	3 - C3, 3 - B1	(2)
SC0174	SHAFT	3 - D1	(1)
SC0179	KT NUT	3 - D1	(1)
SC0180	SET SPRING	3 - D1	(1)
SC0187	E RING	3 - D1	(1)
SC0188	C CONTACT B	3 - B3	(1)
SC0189	C CONTACT A	3 - A2	(1)
SC0190	C STOPPER	3 - B3	(1)
SC0192	MAGNET 1	3 - B1	(1)
SC0193	MAGNET 2	3 - D1	(1)

OLYMPUS XA2

PARTS LIST

LEE23 4/5

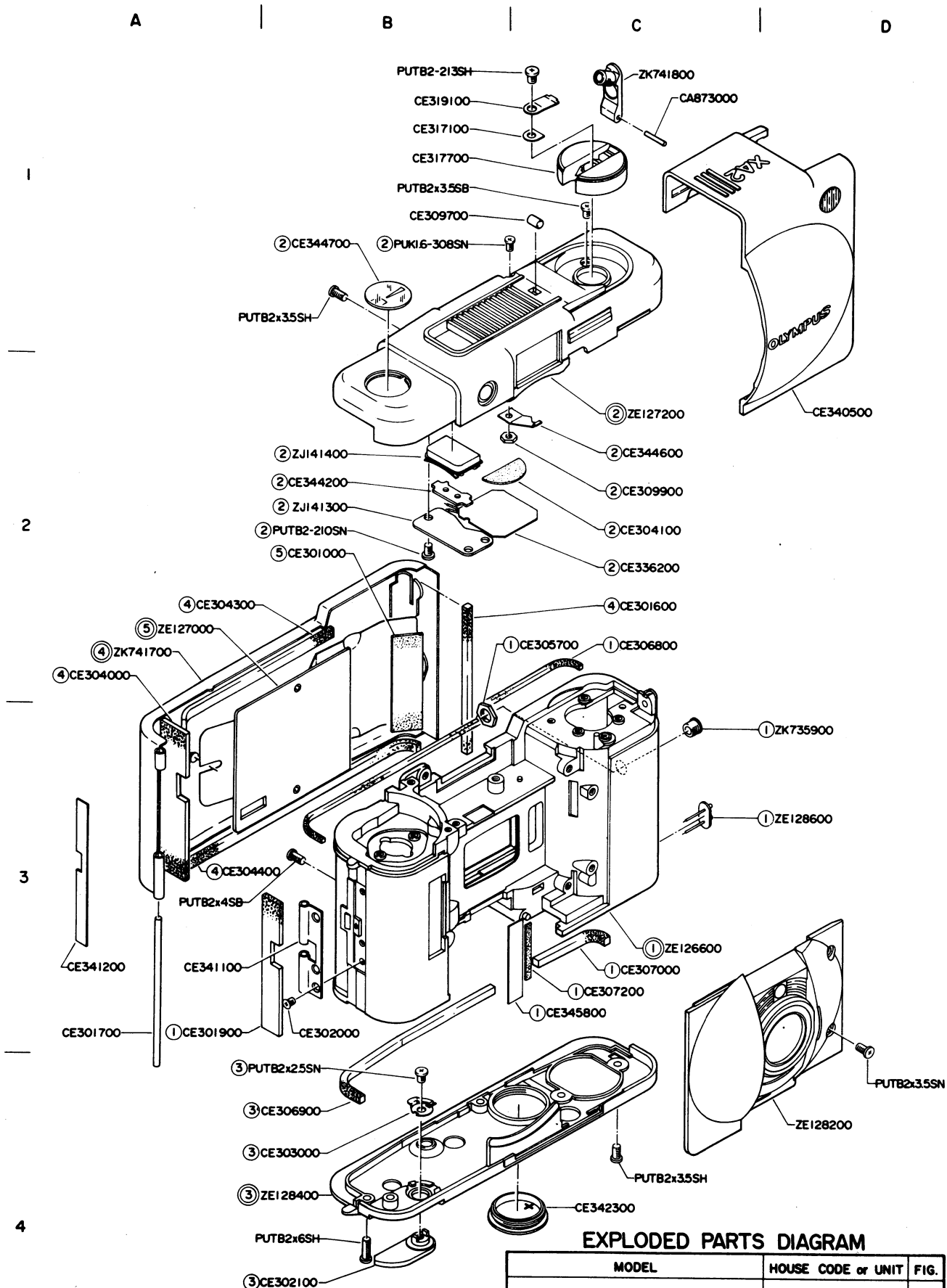
<u>PARTS NO.</u>	<u>NAME OF PARTS</u>	<u>NOTE</u>	(Q'ty used/ per unit)
SC0194	X CONTACT A	3 - C1	(1)
SC0195	X CONTACT B	3 - C1	(1)
SC0196	SPRING	3 - A2	(1)
SC0197	FAN GEAR	3 - B1	(1)
SC0198	RG GEAR	3 - C2	(1)
SC0199	SPRING	3 - B1	(1)
SC0281	LEVER	3 - D1	(1)
SC0282	SPRING	3 - C1	(1)
SC0283	E RING	3 - C2	(1)
SC0284	RG U. PLATE	3 - B1	(1)
SC0285	M1 STOPPER SCREW	3 - B1	(1)
SC0286	SHUTTER BLADE	3 - C3	(1)
SC0287	BLADE FASTENER	3 - D3	(1)
SC0288	R. CLAW	3 - D1	(1)
SC0289	SPRING	3 - D1	(1)
SC0290	SPRING	3 - B3	(1)
SC0291	SP CLAW	3 - D2	(1)
SC0292	DAMPER	3 - C2	(1)
RBJ-A	LEAD WIRE BLUE	Length: 10m	
RBJ-B	LEAD WIRE BLACK	Length: 10m	
RBJ-C	LEAD WIRE BROWN	Length: 10m	
RBJ-D	LEAD WIRE ORANGE	Length: 10m	
RBJ-G	LEAD WIRE GREEN	Length: 10m	
RBJ-H	LEAD WIRE GRAY	Length: 10m	
RBJ-M	LEAD WIRE PURPLE	Length: 10m	
RBJ-P	LEAD WIRE PINK	Length: 10m	
RBJ-R	LEAD WIRE RED	Length: 10m	
RBJ-W	LEAD WIRE WHITE	Length: 10m	
RBJ-Y	LEAD WIRE YELLOW	Length: 10m	
PUK1.4 x 1.2SN	SCREW		
PUK1.4 x 2.5SN	SCREW		
PUK1.4 - 309SN	SCREW		
PUK1.4 - 606SN	SCREW		
PUK1.4 x 2SN	SCREW		
PUK1.6 x 1.2SN	SCREW		
PUK1.6 x 3SN	SCREW		
PUK1.6 - 308SN	SCREW		
PUK1.7 - 341SN	SCREW		
PUK1.7 x 4SN	SCREW		
PUK2 x 3SN	SCREW		
3PUK1.4 x 2.2SN	SCREW		
3PUK1.4 x 4SN	SCREW		
PUTB1.6 - 410SB	SCREW		
PUTB2 - 213SN	SCREW		
PUTB2 - 310SB	SCREW		
PUTB2 x 2.2SN	SCREW		
PUTB2 x 2.5SN	SCREW		
PUTB2 x 2.5SB	SCREW		
PUTB2 x 3SN	SCREW		
PUTB2 x 3.5SB	SCREW		

OLYMPUS XA2

PARTS LIST

LEE23 5/5

<u>PARTS NO.</u>	<u>NAME OF PARTS</u>	<u>NOTE</u>	(Q'ty used/ per unit)
PUTB2 x 3.5SN	SCREW		
PUTB2 x 3.5SH	SCREW		
PUTB2 x 4SN	SCREW		
PUTB2 x 4SB	SCREW		
PUTB2 x 6SH	SCREW		
PUTB2 - 306SB	SCREW		
PUTB2 - 210SN	SCREW		
PUTB2 - 214SN	SCREW		
PUTB2 - 213SH	SCREW		
PUTB2 x 2.2SB	SCREW		
PSTB1.4 x 2SB	SCREW		
PSTB2 x 4.5SN	SCREW		
NW2.1 - 140PO	WASHER		
NW2.1 - 240PO	WASHER		
NW2.1 - 340PO	WASHER		
NW2.1 - 440PO	WASHER		
PUTB2.3 x 3.5SH	SCREW	SPECIAL SCREW FOR WIDENED HOLE	
PUTB2.3 x 4SB	SCREW	SPECIAL SCREW FOR WIDENED HOLE	
PUTB2.3 x 4.5SH	SCREW	SPECIAL SCREW FOR WIDENED HOLE	
PUTB2.3 x 6SH	SCREW	SPECIAL SCREW FOR WIDENED HOLE	
PSTB2.3 x 4.5SN	SCREW	SPECIAL SCREW FOR WIDENED HOLE	



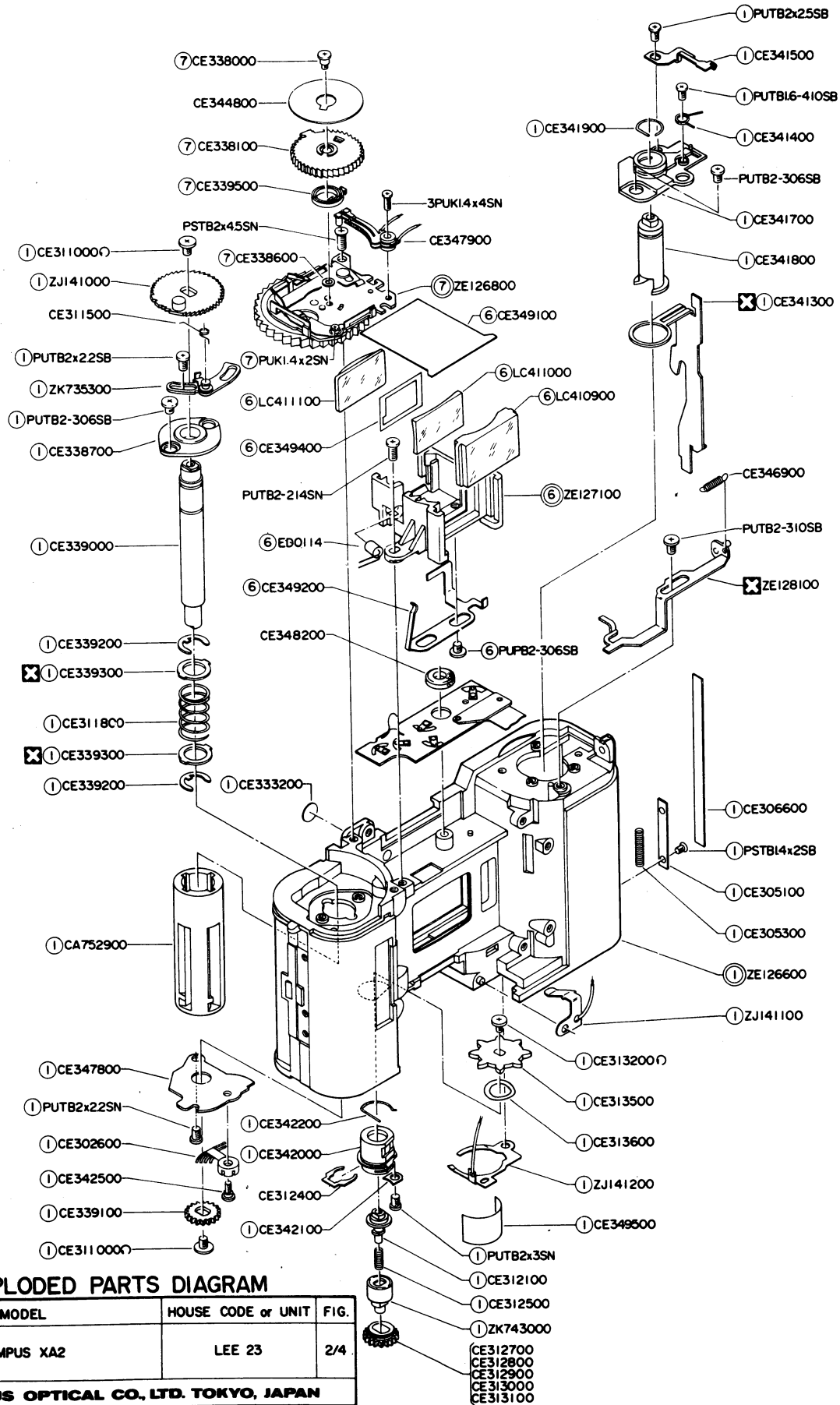
MODEL	HOUSE CODE or UNIT	FIG.
OLYMPUS XA2	LEE 23	1/4
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

A

B

C

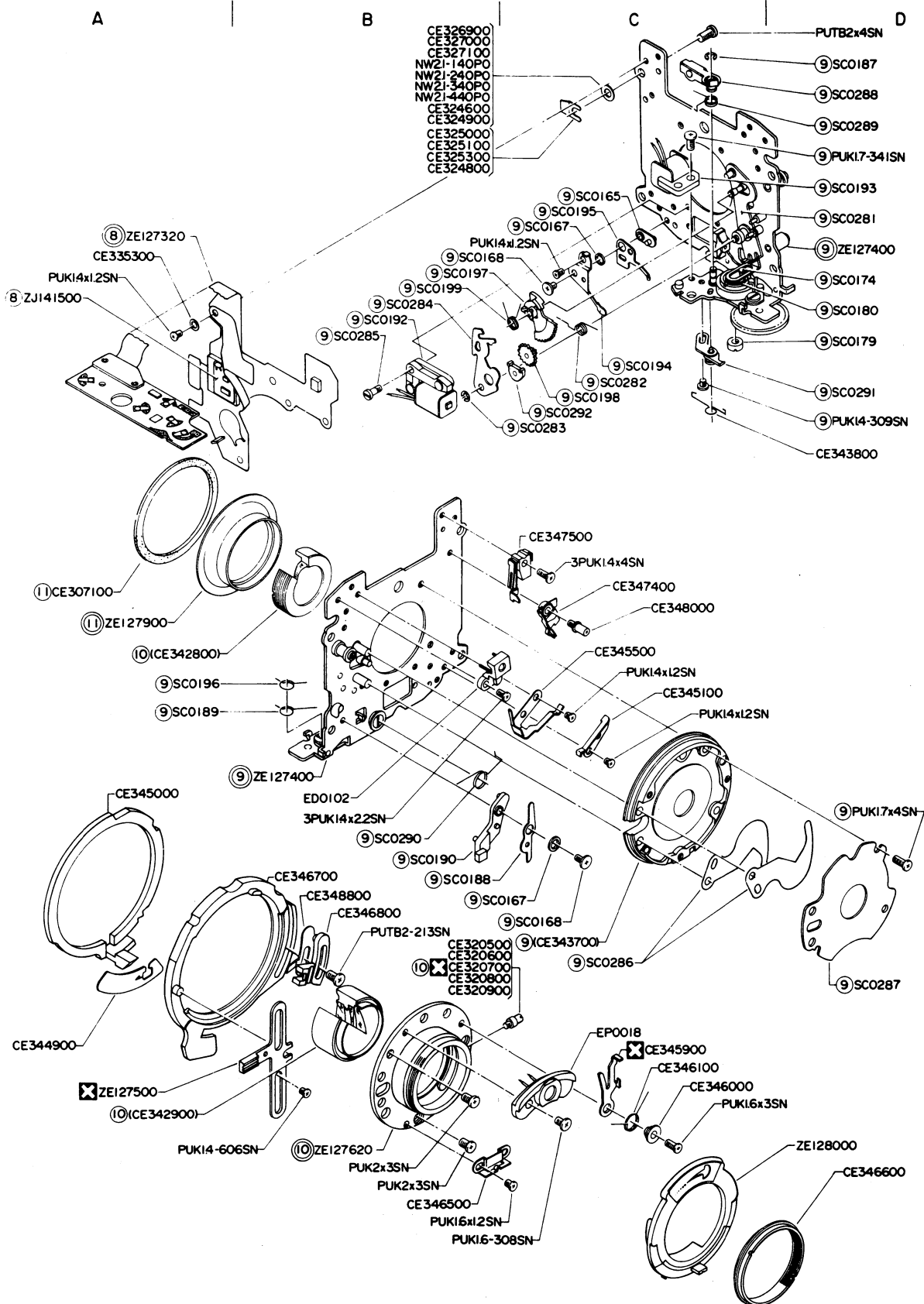
D



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OLYMPUS XA2	LEE 23	2/4
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE: WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OLYMPUS XA2	LEE 23	3/4
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

A

**GENERAL OUTLINE
AND
MECHANICAL FEATURES**

A. GENERAL OUTLINE AND MECHANICAL FEATURES

GENERAL OUTLINE

Model Name: OLYMPUS XA2
House Code: LEE 23

Lens/finder barrier:

Sliding cover. When the cover is opened, power is switched on and shutter release unlocks. When the cover is closed, power is switched off and shutter release locks.

MAIN SPECIFICATIONS

Camera type:

35 mm electronic lens-shutter camera

Film format:

35 mm standard cassette (24 x 36 mm)

Lens:

D. Zuiko 35 mm F3.5, 4 elements in 4 groups

Shutter:

Programmed between-lens shutter

Viewfinder:

Bright frame finder, 0.5x. Long exposure warning and flash mark visible in finder

Focusing:

Three zone indicators

Exposure control:

Programmed shutter. Automatic exposure range 2 sec. (F3.5) ~ 1/750 sec. (F14).

Film speed range:

ASA 25 ~ 800

Film advance:

Rear winding thumbwheel (360°)

Exposure counter:

Progressive type with automatic reset

Film rewind:

Crank type with rewind release button

Shutter release:

Electromagnetic shutter release

Self timer:

Electronic self-timer with 12 second delay
Blinking LED and electronic beeper (Piezo-electric Ceramic Vibrator) during self-timer operation

Battery check:

Via self-timer/battery check lever
Continuous PED and PCV

Flash mounting:

Exclusive automatic Electronic Flash All attaches to (or detaches from) the camera in seconds. Setting camera's flash lever to flash symbol switches the All on, and sets the XA2 for autoflash.

Power source:

Two 1.5 V alkali-manganese batteries LR44 (A76) or silver oxide batteries SR44 (Everady EPX-76 or equivalent)

Dimensions:

102 (W) x 65 (H) x 40 (D) mm
(4" x 2.6" x 1.6")

Weight:

200 grams or 7.1 oz. (less batteries)

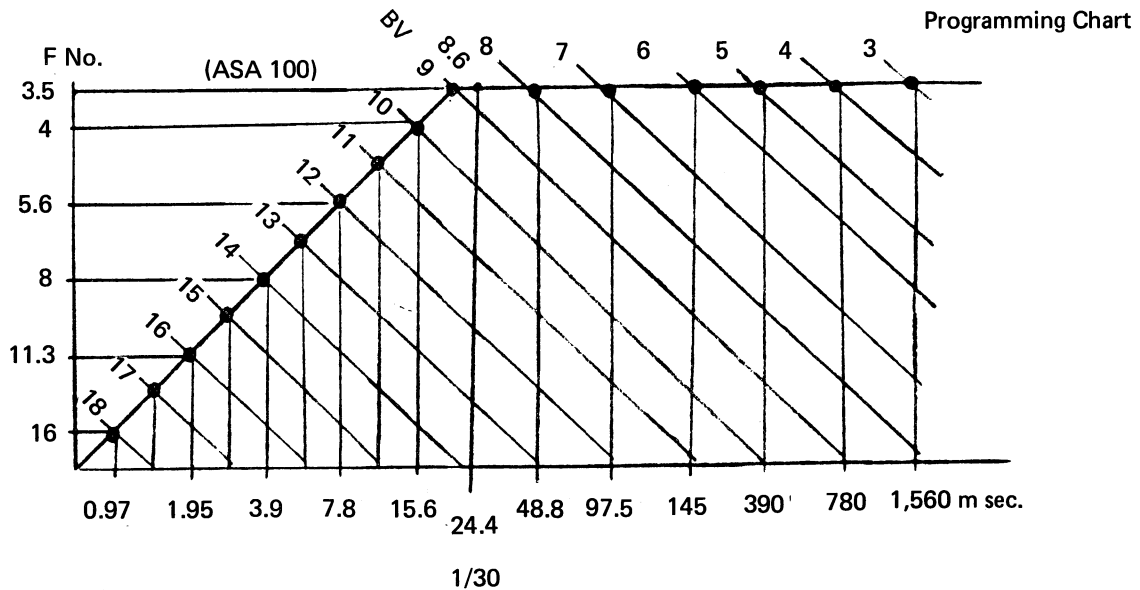
SHUTTER MECHANISM

LEE 23 adopts a programmed shutter whose blades are used also as the stop, and whose speed is electronically controlled with an LSI.

1. Operations of shutter

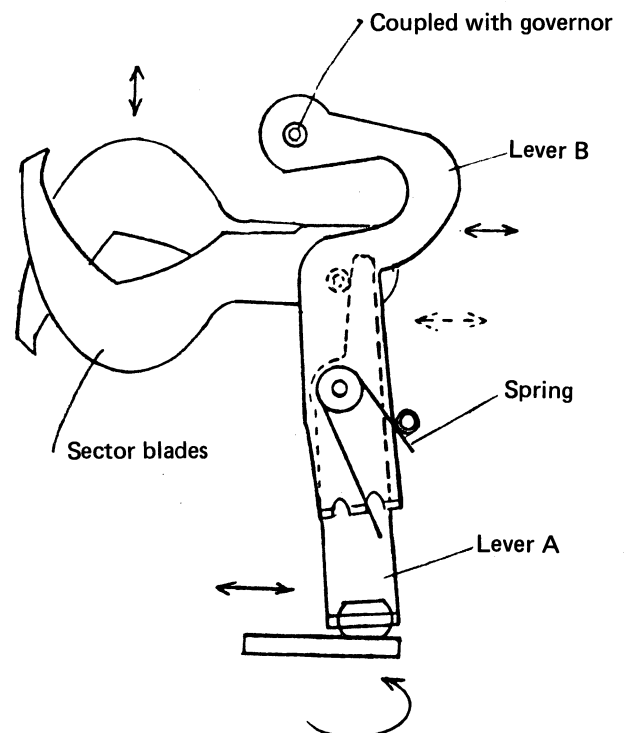
When the shutter is operated with shutter speed set within a range of $1/500 \sim 1/30$, shutter diameter and shutter opening time (shutter speed) vary as functions of brightness. (Since the shutter is not fully opened, exposure is determined as a function of shutter diameter.)

At the shutter speeds lower than $1/30$, the shutter is fully opened for a time and the stop is set at a constant aperture. Therefore, exposure is controlled by changing timing for closing the shutter.



2. Operations of shutter mechanism

Operations of the shutter is controlled with two magnets in the same manner as that in the Model XA. Differences from the Model XA lie in the facts that the lever A is not coupled directly with the shutter blades and that a governor is adopted in LEE 23. Operation of the lever A is dependent on the timing to turn OFF the MG2. The shutter is opened and closed with a lever B which is coupled directly with the shutter blades. The lever B is compressed onto the lever A under force of a spring. The lever A starts operating upon turning ON the MG-1. However, the lever B is braked due to direct coupling with the governor and, therefore, follows the lever A with a little time lag, thereby opening the shutter at a slow speed. Before the shutter is fully opened, the lever A starts its returning course until it strikes against the lever B, which is set at its start position to close the shutter.



3. Operating sequence of shutter mechanism

- (1) MG-2 is turned ON to attract the rear claw to it.
- (2) MG-1 is turned ON to release the front claw from the shaft.
- (3) The shaft rotates and the lever follows it.
- (4) The lever B starts operating to open the shutter.
- (5) The shaft strikes against the rear claw to brake or stop its rotation.
- (6) MG-2 is turned OFF to release the rear claw.
- (7) The shaft rotates and the lever follows it.
- (8) The lever B is forcibly returned to its initial position by the lever to close the shutter.

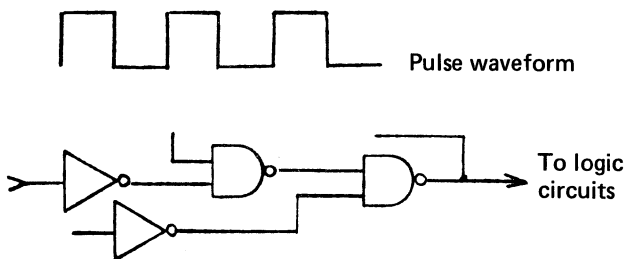
CIRCUIT DESCRIPTION

LEE 23 comprises counter circuit (operation circuit), integration circuit, gamma correction circuit, camera shake warning circuit, judging circuit (for optimum exposure), MG-2 driving circuit, oscillator circuit, LED and PCV driving circuit, hold circuit, re-releasing prevention circuit, mode selector circuit, VCC judging circuit, C102 discharge circuit and MG-1 driving circuit.

1. Counter circuit (operation circuit)

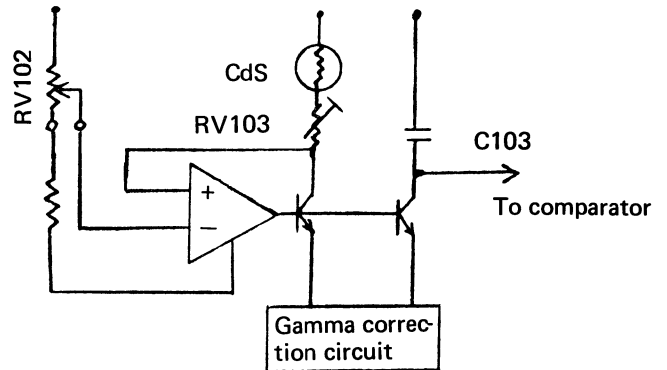
Upon releasing the shutter, the counter circuit is reset and generates signals required for the selected mode at precise timings.

The OSC (oscillator circuit) provides pulses of 8,192 Hz to the counter circuit, which prepares pulses of 4,096 Hz. 16, 8, 4, 2 Hz and 1, 1/2, 1/4 . . . 1/128 Hz. Operation timings are controlled with H and L signals emitted from a combination of logic circuits.



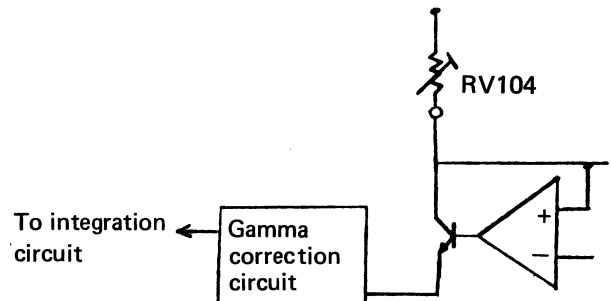
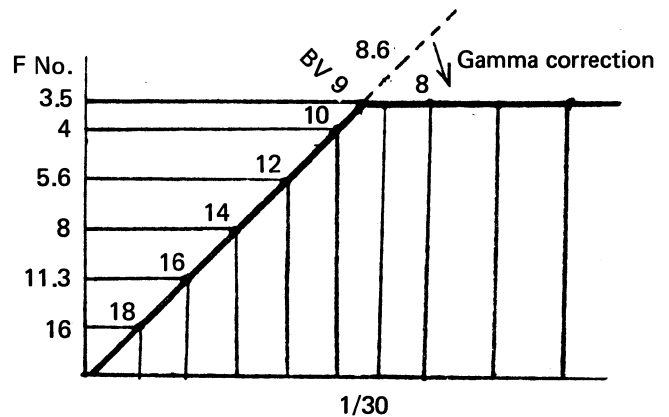
2. Integration circuit

Exposure time is determined by a combination of CdS, RV102 and C103.



3. Gamma correction circuit

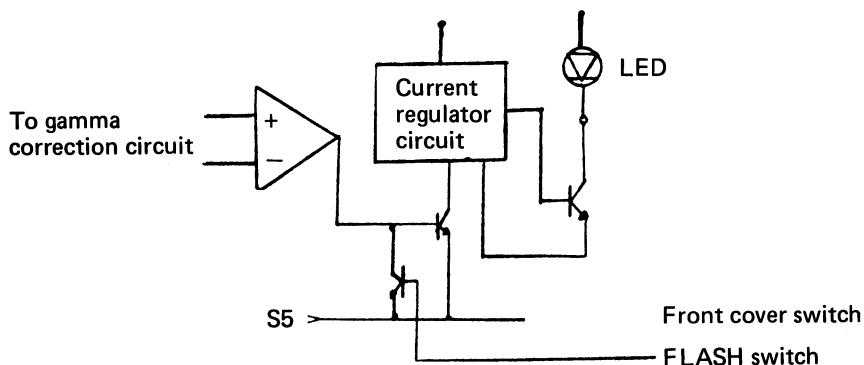
Exposure time is determined by controlling variation of shutter diameter within a shutter speed range of 1/500 ~ 1/30. At shutter speeds lower than 1/30, shutter diameter is kept constant and, therefore, shutter opening time is prolonged by the gamma correction circuit.



4. Camera shake warning circuit

At BV 8.6 or lower (1/30), this circuit automatically lights the camera shake warning LED arranged in the viewfinder while maintaining it at constant brightness. The LED normally goes out in 96 seconds. If the front cover is closed within this

time, however, the LED goes out immediately. The circuit inhibits the LED from lighting in the FLASH mode. All the operations of the camera shake warning circuit are controlled with the signals provided from the counter circuit.



The LED is lit upon opening the front cover. If film is wound or release button is depressed while LED is lit, it will stay lit continuously further for

96 seconds as measured from the moment of that operation.

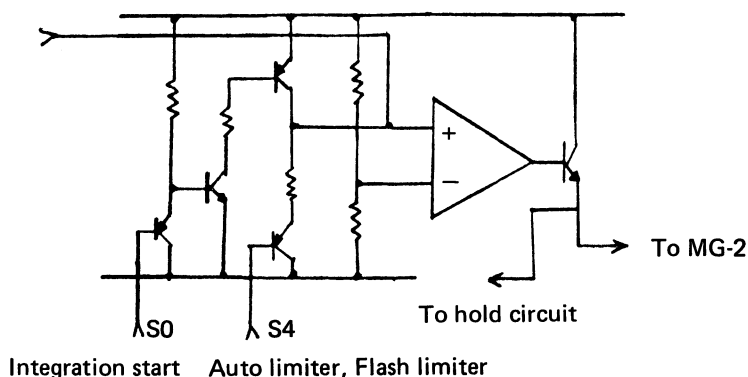
5. Judging circuit (for optimum exposure)

The judging circuit is wired to the integration circuit determining the timing to turn off MG-2. The judging circuit starts operating upon reception of a signal from the counter circuit 15.6 ms after releasing the shutter.

In the AUTO mode, the circuit receives OFF signal from the integration circuit to determine the timing to turn OFF MG-2.

If the signal is not received within 2 seconds after releasing shutter, it turns OFF MG-2 with a signal provided from the counter circuit (function of an automatic limiter).

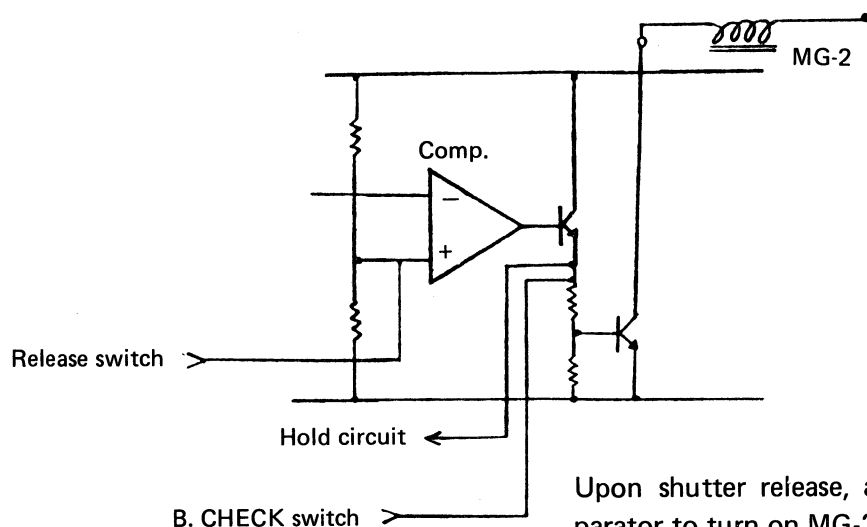
In the FLASH mode, the shutter operates at a high speed depending on exposure at brightness higher than 8.6, but MG-2 is turned off in 70.3 ms at brightness lower than BV 8.6 (function of a flash limiter).



6. MG-2 driving circuit

This circuit functions to turn on and off MG-2 as commanded by signals provided from the comparator. It also serves for keeping the shutter in open condition for 96 seconds during FC adjust-

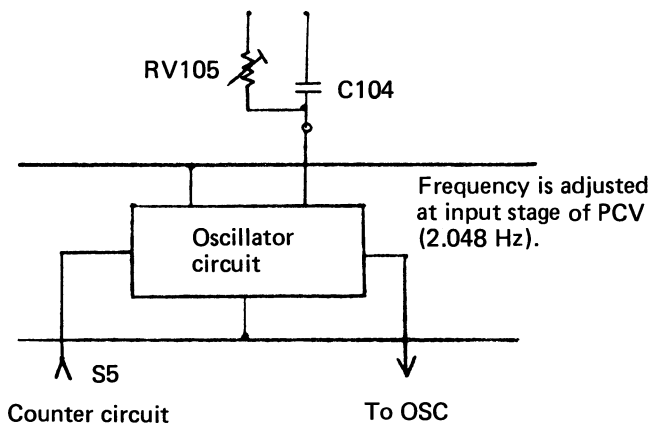
ment. (The shutter is kept fully open by selecting B. CHECK mode while it is opened after shutter release button is depressed.)



Upon shutter release, a signal is fed to the comparator to turn on MG-2.

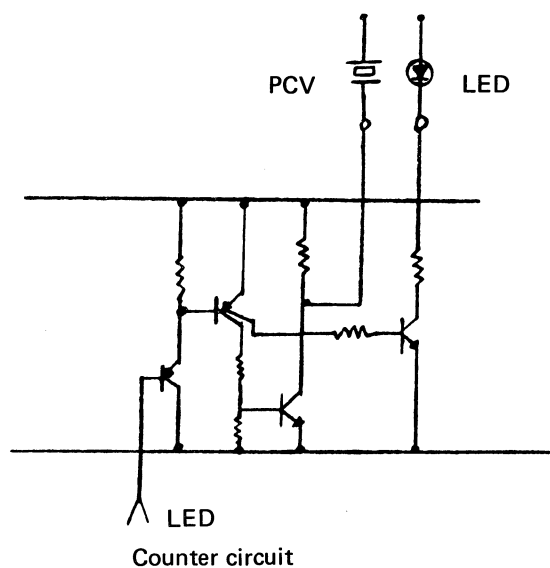
7. Oscillator circuit

Oscillating pulses are generated as inputs to the OSC (oscillator circuit). Oscillating frequency is controlled by RV105.



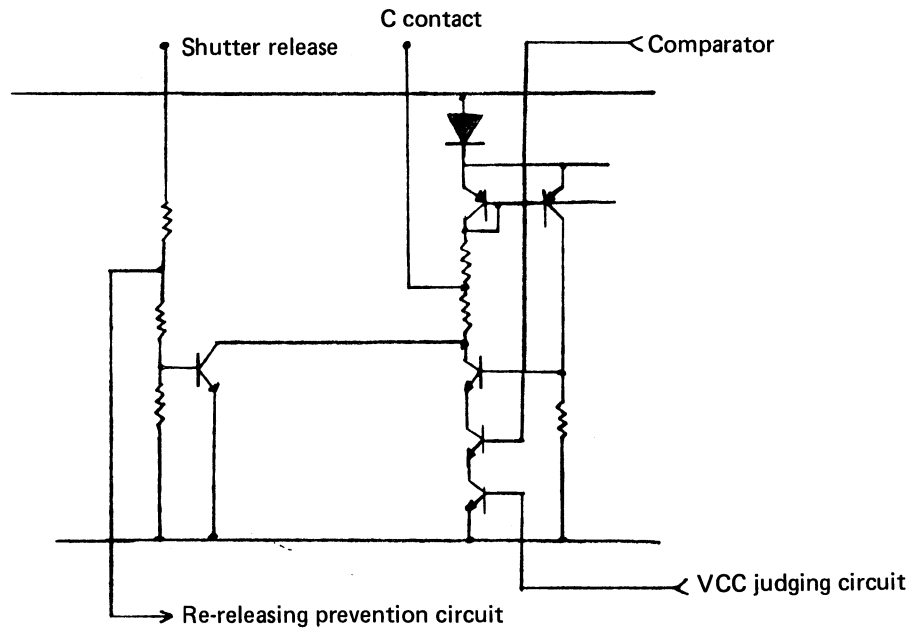
8. LED and PCV driving circuit

The LED and PCV are driven with signals provided from the counter circuit.



9. Hold circuit

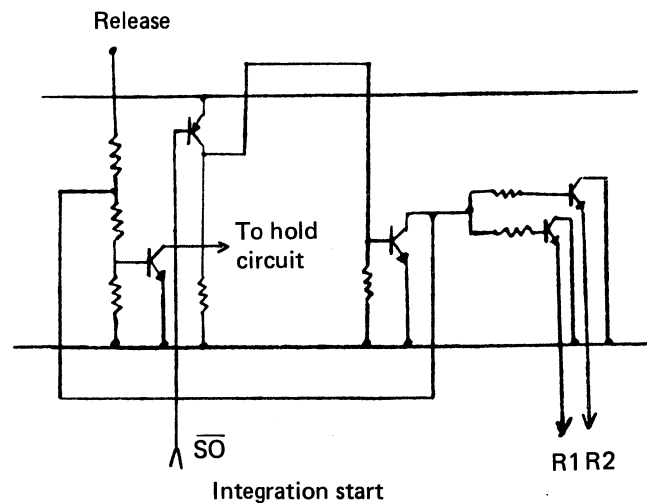
The hold circuit functions to place the other circuits in operating conditions for a time from the shutter release to closing of the shutter vanes.



10. Re-releasing prevention circuit

This circuit cuts signals off the counter circuit to prevent erroneous operation when the shutter is

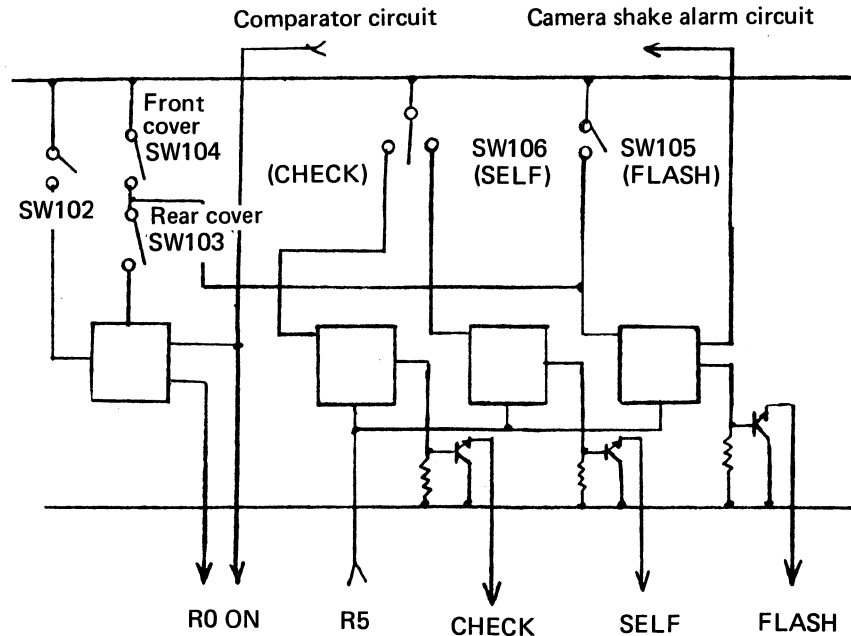
re-released for the time from the shutter releasing to closing of the shutter blades.



11. Mode selector circuit

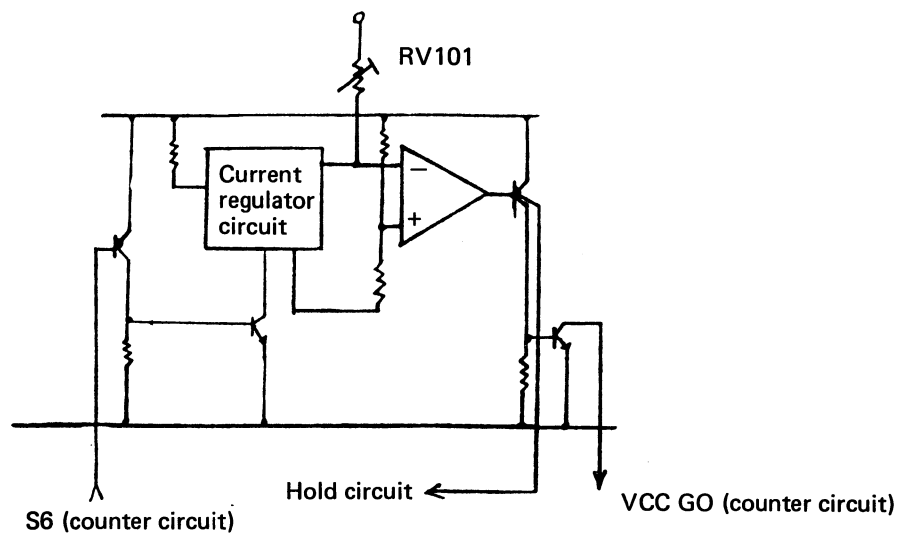
The mode selector circuit provides signals for selecting the FLASH, SELF-TIMER and B. CHECK modes. The signals for this purpose are used in combination with those from the front cover

switch, rear cover switch and film winding switch for controlling the operations of the counter circuit.



12. VCC judging circuit

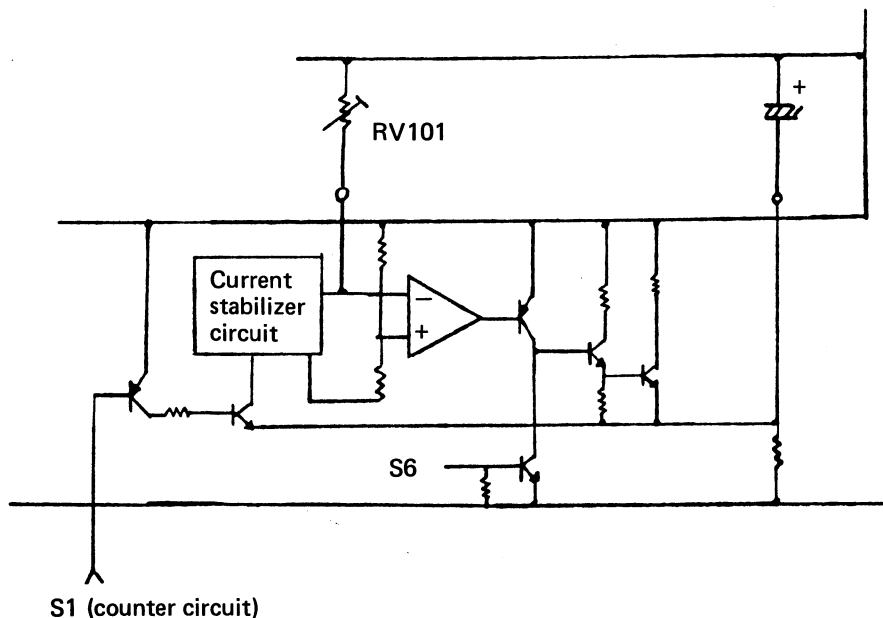
When power source voltage check indicates 2.2 V or higher, the VCC judging circuit provides an OK signal to both the counter circuit and hold circuit.



13. C102 discharge circuit

This circuit is provided for discharging C102 from approx. 3 V to 2.2 V. The discharge starts 7.8 ms after releasing the shutter and completes in 15.6 ms. The discharge down to 2.2 V is effective to

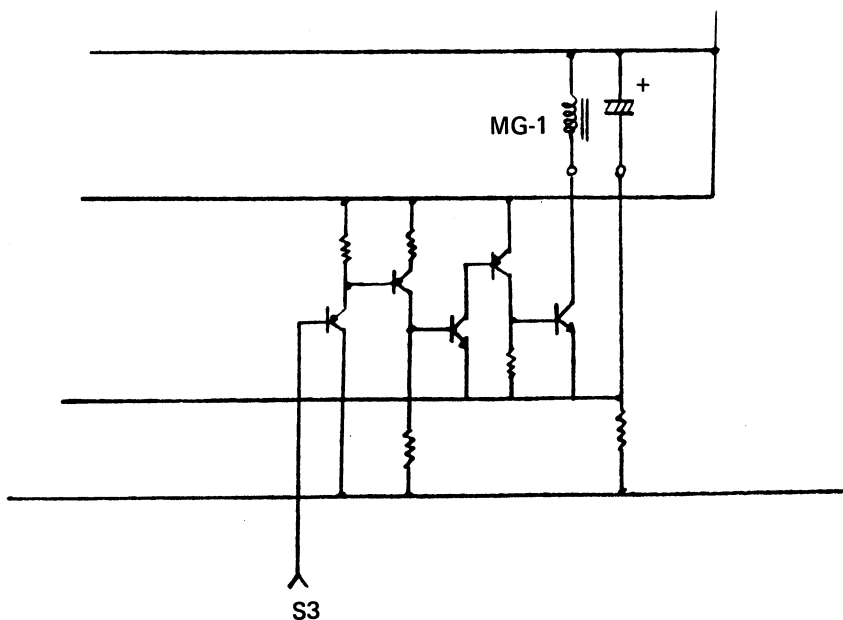
stabilize operating timing of MG-1. (Variation of MG-1 operating timing will affect exposure especially at high shutter speeds.)



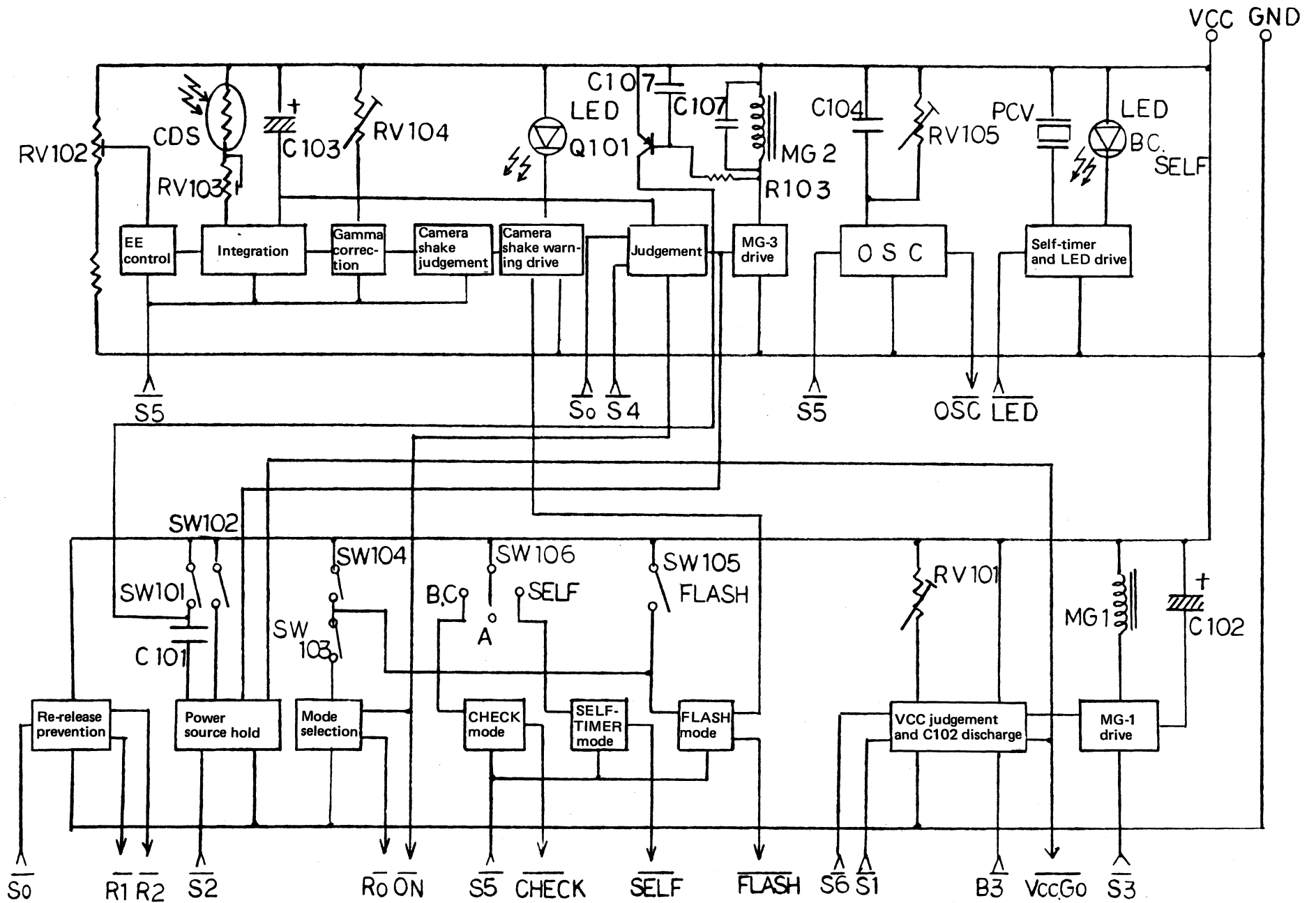
14. MG-1 driving circuit

This circuit allows C102 to flow electric charges to MG-1 upon receiving a signal from the counter circuit 15.6 ms after releasing the shutter. (The

discharging operation is delayed 12 sec. in the SELF mode.)

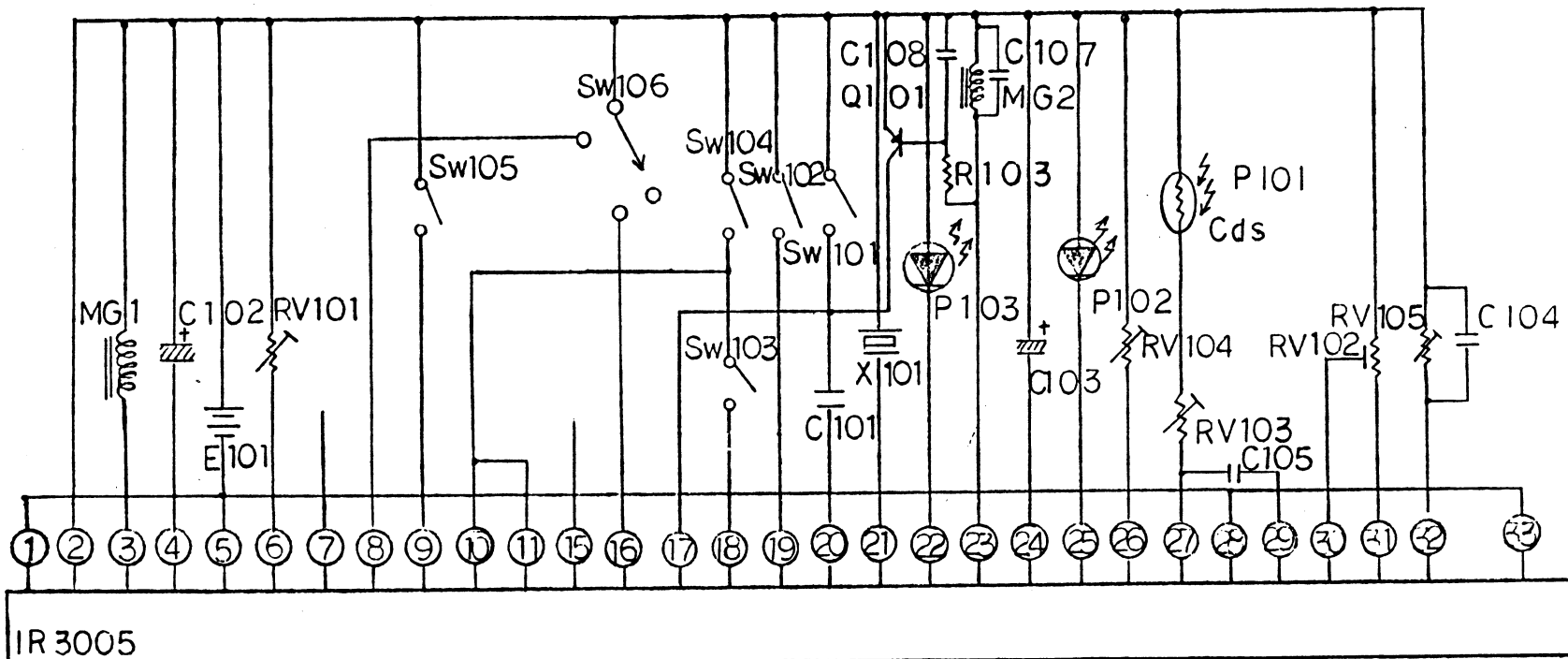


LEE 23 CIRCUIT DIAGRAM



LEE 23 CIRCUIT DIAGRAM

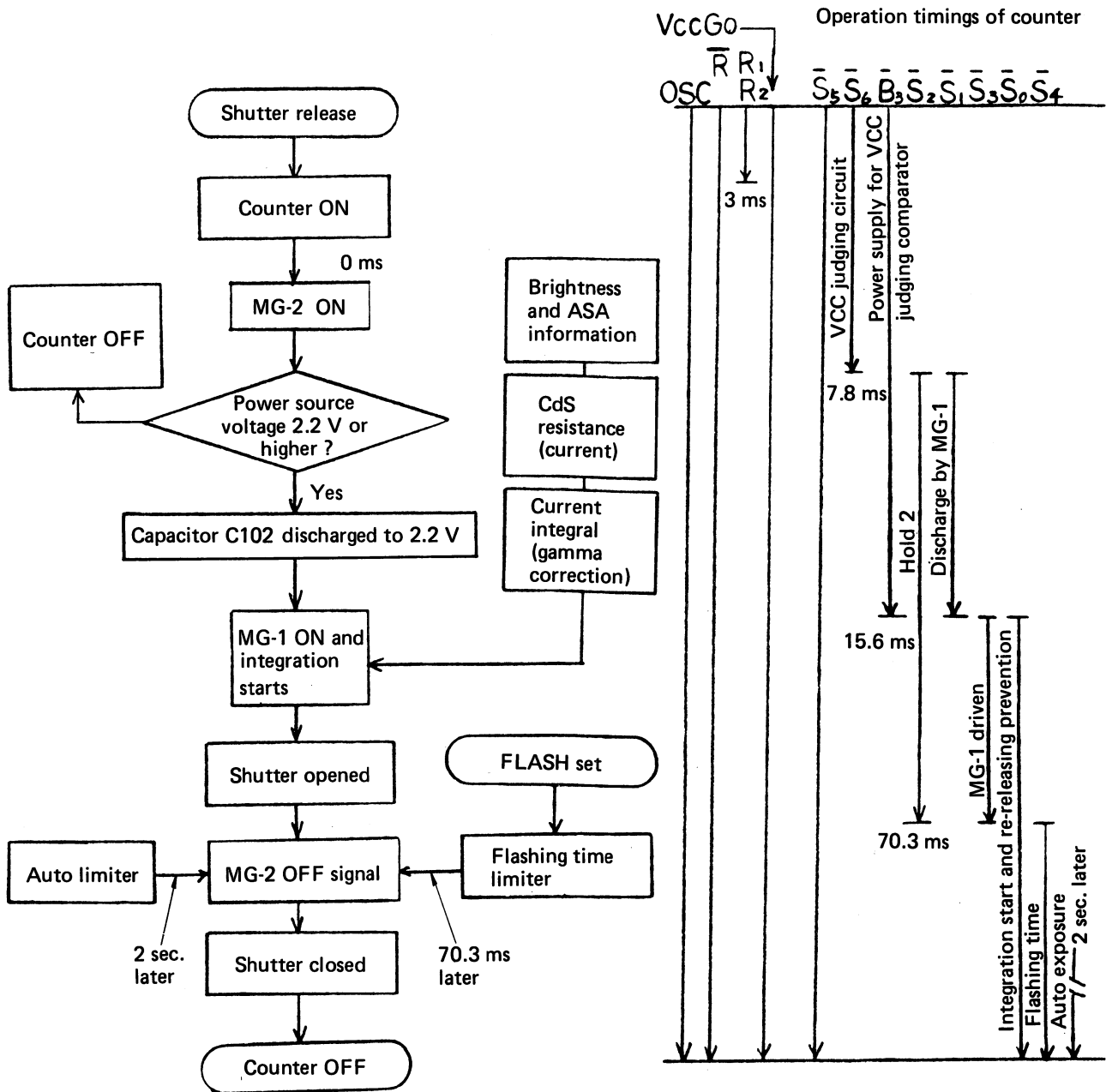
A-10



- C101: For stabilizing shutter release
- C102: For driving MG-1
- C103: Integrating capacitor
- C104: For providing OSC input pulses of 8.92 Hz
- C105: For preventing oscillation of CdS
- C107: For stabilizing turn-off timing for MG-2
- C108: For preventing shutter from being released erroneously due to noise
- P101: E.E. CdS
- P102: Camera shake warning LED

- P103: LED for SELF-TIMER and B.C.
- RV101: For adjusting B.C. lock voltage
- RV102: For adjusting E.E.
- RV103: For adjusting trigger timing
- RV104: For adjusting camera shake warning
- RV105: For adjusting OSC input of 8,192 Hz
- X101: PCV (buzzer)
- Q101: For preventing re-releasing of shutter due to chattering of SW101

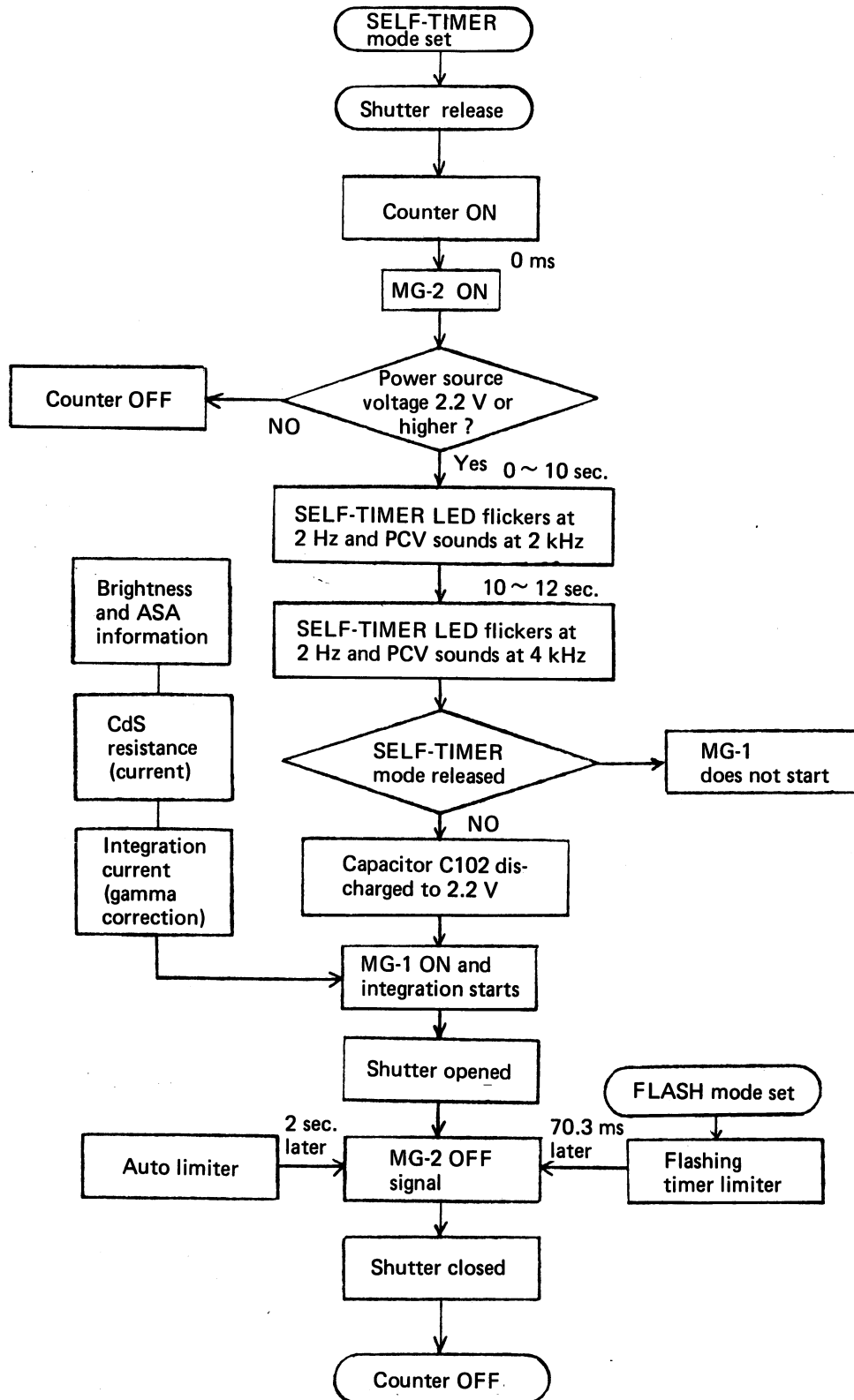
SHUTTER CONTROL FUNCTION



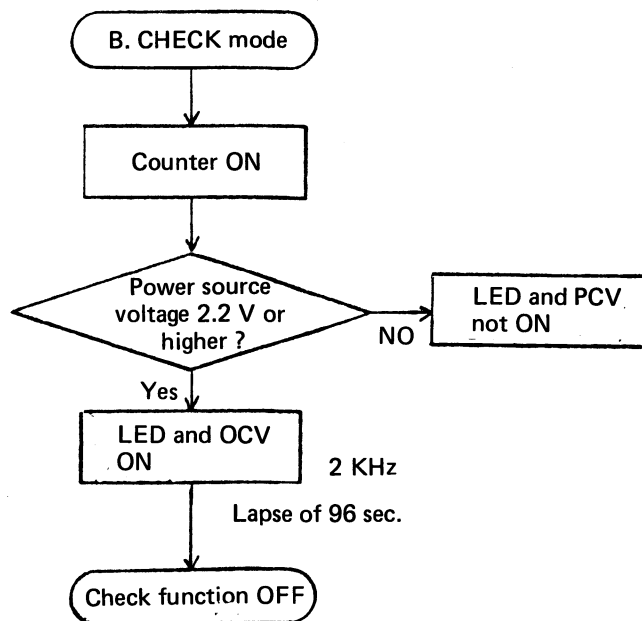
Requirement for shutter operation:

1. The front cover or rear cover is to be opened (K. SW OFF or U. SW OFF).

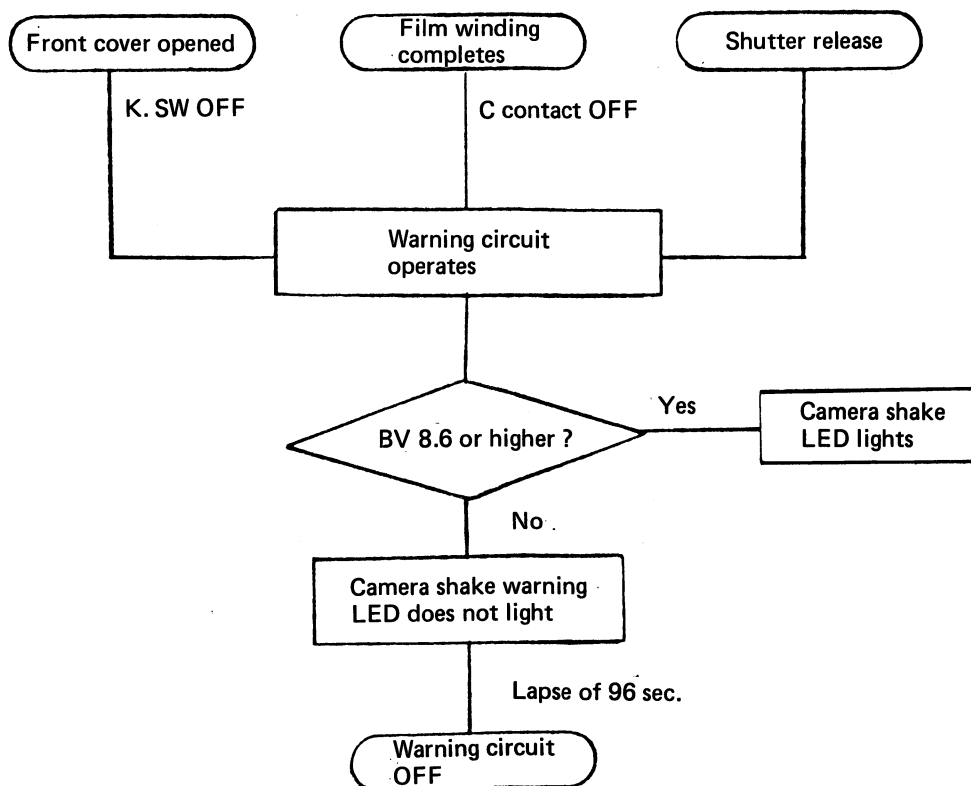
FUNCTION OF SELF-TIMER



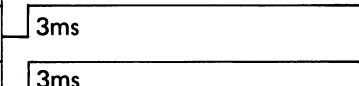
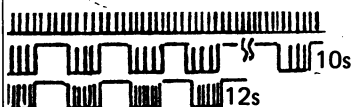
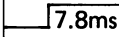
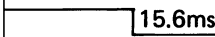
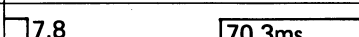
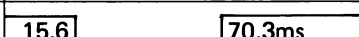
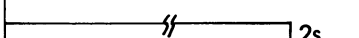
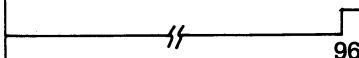
BATTERY CHECK FUNCTION



Camera Shake Warning Function



IR3005 (SIGNAL DESCRIPTIONS)

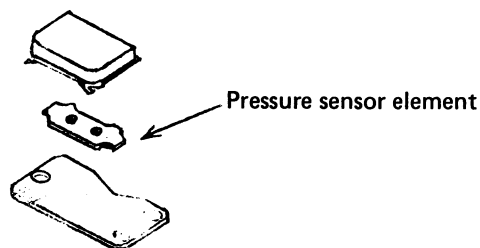
Counter (input to I ² L)	OSC	8192Hz 	Oscillating pulse source
	$\bar{R}$		Front cover opened (K. SW. OFF) and film winding completed (C. SW OFF)
	$\bar{R}_1$ $\bar{R}_2$		L for 3 ms after shutter release (reset pulse)
	$\overline{ON}$		L after shutter release with front cover opened and film winding completed
	$\overline{SELF}$		L after setting SELF-TIMER mode (SW106)
	$\overline{FLASH}$		L after setting FLASH mode and loading film (SW105 ON)
	$\overline{CHECK}$		L after setting CHECK mode (SW106)
	$\overline{VCC GO}$		L at battery voltage of 2.2 V or higher
Counter (output from I ² L) Driving of self-timer LED and PCV	$\overline{LED}$		Modes other than CHECK and SELF-TIMER VCC low in CHECK mode Front cover closed in SELF-TIMER mode 2 kHz when VCC is OK in CHECK mode 2 Hz and 2 kHz from 0 to 10 sec. in SELF-TIMER mode 2 Hz and 4 kHz for 10 ~ 12 sec. in SELF-TIMER mode
VCC judgement Comparator power supply	$\bar{B}_3$		L in CHECK mode L in 15.6 ms in modes other than CHECK
VCC judging circuit	$\bar{S}_6$		L in CHECK mode H in 7.8 ms in modes other than CHECK
Integration start Hold 1 and re-releasing prevention	$\bar{S}_0$		L in 15.6 ms
Discharge by MG-1 (down to 2.2 V)	$\bar{S}_1$		L from 7.8 to 15.6 ms
Hold 2	$\bar{S}_2$		L from 7.8 to 70.3 ms
Driving of MG-1	$\bar{S}_3$		L from 15.6 to 70.3 ms
FLASH limiter	$\bar{S}_4$		L in 70.3 ms in flashing and film loading conditions
Autoflash limiter			L in 2 sec. in conditions other than mentioned-above
Camera shake warning circuit OFF I ² L power supply OFF	$\bar{S}_5$		H in 96 sec.

1. The output signals start upon termination of the release pulses.
2. During operation of the self-timer, however, signals S_0 , S_1 , S_2 , S_3 and S_4 start 12 sec. later than specified above.
3. Signals S_2 , S_3 and S_4 are set at the H level by interrupting the SELF-TIMER mode.

OPERATIONS OF SWITCHES

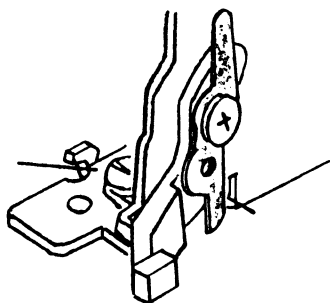
1. SW 1 (release switch)

Pressure sensor element.



2. SW 2 (C contact)

A double exposure prevention switch which is turned ON by closing the shutter and turned OFF upon completion of film winding. The hold circuit is made inoperative while SW 2 is turned ON. If SW 2 is not turned ON at film winding stage, only the self-timer will operate.

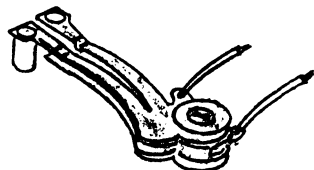


3. SW 3 (U. SW)

A switch interlocked with the rear cover.

Rear cover open: SW 2 OFF

Rear cover close: SW 3 ON



4. SW 4 (K. SW)

A switch interlocked with the front cover.

Front cover open: SW 4 OFF

Front cover close: SW 4 ON



5. SW 5 (A.S. SW)

A switch related to flashing modes.

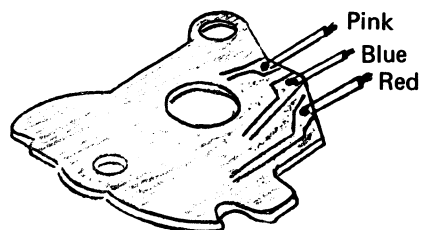
AUTO: SW 5 OFF

FLASH: SW 5 ON



6. SW 6 (battery check-mode selector SW)

Selects three modes of AUTO, SELF-TIMER and B. CHECK in accordance with setting of the self-timer lever.



Operations by Combination of Switches

Front Cover SW 4	Rear Cover SW 3	Operation	Camera Condition
Closed (ON)	Closed (ON)	Shutter locked	Accommodated or rested
Closed (ON)	Opened (OFF)	Film loading time 125 ms or less	Film loading
Opened (OFF)	Closed (ON)	Operations for selected mode. Flashing with SW 5 turned ON.	Photographing and idle winding film loading
Opened (OFF)	Opened (OFF)	Operations for selected mode. Flashing with SW 5 turned ON.	E.E. check

PHOTOGRAPHING LENS

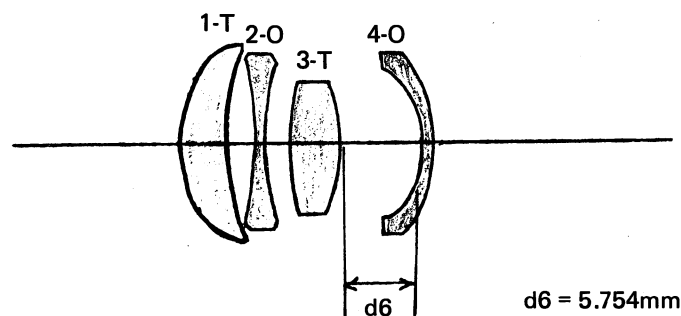
LEE 23 is a 35 mm electronic lens-shutter camera optimum for inexperienced photographers and equipped with a three-zone type focusing system which is automatically set at a standard focusing distance of 2.7 m when the front cover (dust barrier) is opened.

Differences in optical system from Model XA

	Model XA	Model XA2
Focal length	f = 35 mm	Same as left
Aperture ratio	1 : 2.8	1 : 3.5
Lens composition	6 elements in 5 groups (F. Zuiko)	4 elements in 4 groups (D. Zuiko)
Focusing	Inner focusing Rangefinder interlocked	Front lens rotation Three-zone indicators
FC adjusting position	1/75 (2.62 m)	2.7 m
position		 (∞) (2.7m) (1.2m)

In LEE 23, resolution is dependent largest on size d6 in the same manner as that in Model XA. In order to maintain lens performance equalled to that of Model XA, FC adjustment is to be performed by inserting a washer between the S shutter base plate and body with d6 fixed at 5.754 mm and without changing the airspaces. For obtaining the highest resolution, d6 should be 5.754 mm when the camera is set at  (the lens system is focused on an object located at 2.7 m).

Lens composition diagram



B

**CHECK POINTS
(INSPECTION STANDARD)**

B. CHECK POINTS (INSPECTION STANDARD)

CONTENTS

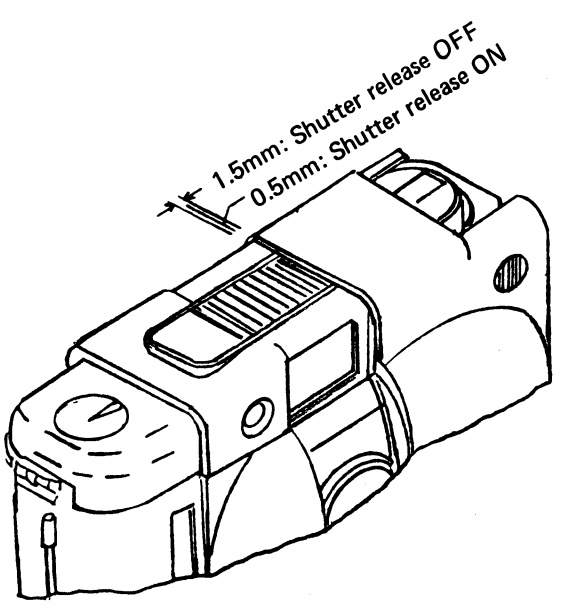
I. APPEARANCE AND FUNCTIONAL QUALITY

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3. Release Button	B - 3
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12. ASA Ring	B - 6
13. Viewfinder	B - 6

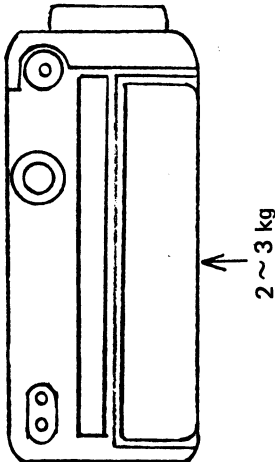
II. FUNCTIONAL PERFORMANCE QUALITY

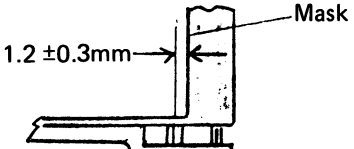
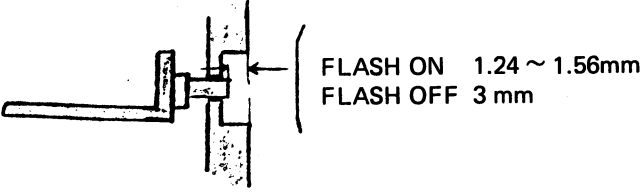
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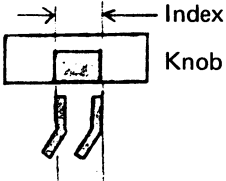
I. APPEARANCE AND FUNCTIONAL QUALITY

Major check point	Relative functions to be checked	Checking method of criteria
1. Front cover		Clicking force as measured on the top of front cover: Opening direction: 300 ~ 500 g Closing direction: 250 ~ 450 g with zone focusing lever set at  300 ~ 600 g with zone focusing lever set at  or 
	1. Zone focusing lever	1. Security of zone focusing lever ○ To be clicked into the groove at  position. ○ The index on the knob is to be aligned with the zone mark. Gap between knob end surface and zone mark: 0.05 ~ 0.65 mm 2. Operating force as measured on the knob: 200 g $\begin{smallmatrix} +60 \\ -20 \end{smallmatrix}$
	2. K switch	The shutter release button should be inoperative when the rear cover is closed and front cover is set at 1.5 mm toward closing side as measured from the opening side click position. The shutter release button must be operative when the front cover is set 0.5 mm as measured from the opening side click position. 

Major check point	Relative functions to be checked	Checking method of criteria
2. Film winder		1. Play of rewind knob The film winder should be free from frictional contact with top cover or body. The film winder should have no remarkable play in radial direction. Circumferential play of the knurled portion should be within 1/2 of the tooth height after completing film winding. 2. Operational smoothness The film winder should turn smooth without seizure, remarkable irregular motion or abnormal noise in its initial condition. 3. Winding force as measured on circumference of the knob: 200 g or less (with film unloaded).
3. Shutter release button		1. Depth as measured from top cover: 0.6 ± 0.1 2. Operating security The button must be capable of releasing the shutter without fail regardless of position depressed. 3. Stroke for releasing Depressing stroke of 0.3 mm or less must be sufficient for releasing the shutter. 4. Switching force for release button: 40 ± 20 g
4. Exposure counter		1. Stop position of character The index should be located within the height of character S with the rear cover kept opened or closed.  In case of 1 and even numbers, the index should be within $\pm 1/4$ of the character height as measured from its center.  2. Display of No. 1 "1" should be displayed after closing the rear cover and winding film three times.

Major check point	Relative functions to be checked	Checking method of criteria
5. R knob		1. Play of R knob ○ Vertical play by its own weight must be 0.25 mm or less when the R knob is set in accommodated condition. The knob must not be brought into contact with the front cover when the camera is set upside down. ○ Play must not allow the knob to contact the top cover. 2. Force required for pulling out R knob First step: 350 g $\pm$ 100 Second step: 900 g $\pm$ 300
	1. R crank	Friction on R crank: 20 g $\pm$ 10
	2. R lever	Force of R lever spring 15 ~ 35 g at start of raising the R lever
6. R button		1. Security of R button ○ The sprocket must not be disengaged when the R button is depressed 0.72 mm as measured from the bottom plate. ○ The sprocket should be disengaged by depressing the R button one step further. ○ When the R button is fully depressed, it must not be lower than the bottom of the cavity formed in the bottom plate. 2. Resetting of R button When the sprocket is turned manually for an angle corresponding to one exposure count, the R button should be reset without fail. (1.5 exposure counts may be required for resetting the R button, though rarely.) 3. Depressing force for R button 110 g $\pm$ 20 as measured when the R button is stopped.
7. Rear cover		1. Operational security of M key ○ When the rear cover is opened with the R knob risen in two steps, the M key should be locked securely to assure smooth loading or unloading of a patrone. ○ When the rear cover is closed by depressing its rear center, the key must be locked securely. ○ Engaging depth of key plate The M key plate should be engaged in a depth at least 2/3 of its thickness. 2. Force for closing rear cover With a patrone set in position, the rear cover must be closed when its vertical center (near the patrone) is pushed with a force of 2 ~ 3 kg.

Major check point	Relative functions to be checked	Checking method of criteria
8. Sprocket		1. Play of sprocket Vertical play: 0.12 mm or less Radial play: 0.15 mm or less Play in turning direction: 0.9 mm or less (at roots of teeth) 2. Sprocket tooth position Distance as measured from right end of the mask to tip of sprocket tooth: 1.2 ± 0.3 mm (with play canceled on the patron side after completing film winding) 
9. Spool		1. Play of spool Vertical play: 0.45 ± 0.25 mm Radial play: 0.3 mm or less Rotational play: 0.5 mm or less (as measured on spool circumference) 2. Torque for turning spool: $(170 \pm 30) \times 6$ g-mm
10. AS ring		Security for selecting FLASH mode - The selector lever must be incapable of setting at FLASH position when strobo is not attached. - The selector lever must be capable of setting at FLASH position when a strobo is attached in position.
	1. AS pin	1. Distance from body side to tip of AS pin - FLASH ON: 1.24 ~ 1.56 mm - When AS pin tip is depressed 3 mm, the AS ring should be clicked into the OFF groove. - When AS pin tip depressed 2.1 mm, the AS ring must not return into the OFF groove.  2. Force for returning AS pin 250 g or less

Major check point	Relative functions to be checked	Checking method of criteria
11. Self-timer lever		Force for clicking in self-timer lever: 150 ± 50 g (as measured on lever tip)
	1. LED	1. Brightness of LED LED must be visible from the repairer standing at a point 3 m apart from the camera with a light source corresponding to BV15 located at the back of the repairer. 2. Flickering interval of LED SELF-TIMER mode: Flickering 20 ± 2 times/10 sec. B. CHECK mode: Continuously lit at $2.3 \text{ V} \pm 0.06$
	2. Buzzer (PCV)	1. Sounding interval ○ SELF-TIMER mode: Intermittently sounding 20 ± 2 times/10 sec. Sounding tone should change 2 ± 1 sec. before shutter release. ○ B. CHECK mode: Continuously sounding
	3. Self-timer settable time	9 ~ 14 sec. (at 3.0 V)
12. ASA ring		1. Alignment of scale index The ASA scale index must be located within the width of the index mark on the knob. 
		2. Clicking force 300 ± 100 g
13. Viewfinder		1. Visual field of optical mask $80 \sim 100\%$ at 3 m 2. Parallax of optical mask The optical mask must not deviate from the field area located at the depth.

Major check point	Relative functions to be checked	Checking method of criteria
	1. F plate	1. Position of F plate tip AUTO mode ○ Lateral position: Tip of the F plate must be located within a range corresponding to 2.5 times of the optical mask thickness, or portion of mark "⚡" must be invisible. Within a range 2.5 times of the optical mask thickness Optical mask ○ Vertical position: The optical mask must not be eclipsed by the F plate, or portion of mark "⚡" must be invisible. FLASH mode ○ Mark "⚡" must not be eclipsed by the F plate.

II. FUNCTIONAL PERFORMANCE QUALITY

1. E.E. accuracy $K = 1.7$, ASA 100, $B = 3.0$ V

BV	E.E. accuracy	In case of $K = 1.3$ (35 ED)
4	0 ± 1.0 EV	$+0.4 \pm 1.0$ ($-0.6 \sim +1.4$)
9	0 ± 1.0 EV	$+0.4 \pm 1.0$ ($-0.6 \sim +1.4$)
15	0 ± 1.0 EV	$+0.4 \pm 1.0$ ($-0.6 \sim +1.4$)

2. ASA switching and E.E. accuracy

BV	ASA	E.E. accuracy	In case of $K = 1.3$
9	50	0 ± 1.0 EV	$+0.4 \pm 1.0$ ($-0.6 \sim +1.4$)
9	400	0 ± 1.0 EV	$+0.4 \pm 1.0$ ($-0.6 \sim +1.4$)

3. Lighting and extinguishing accuracy of camera shake warning LED

ASA100 $K = 1.7$

LED lights at BV 8.25

LED extinguishes at BV 8.95

4. Lighting time of camera shake warning LED

92 ± 10 sec. after film winding completes or rear cover is opened.

96 ± 10 sec. after the shutter is released.

5. Maximum exposure time

$1.6 \sim 2.4$ sec. at ASA100 and in perfect darkness.

6. Flash time

$31.2 \begin{smallmatrix} +12 \\ -10 \end{smallmatrix}$ ms with the selector knob turned ON and in perfect darkness (with the sector blades fully opened).

The shutter shall operate at high brightness with the selector knob turned on, giving priority to the AUTO mode.

7. Film loading time

When the front cover kept closed and the rear cover kept opened, the shutter operation shall complete within 125 ms (1/8 sec.).

8. FC of lens

2.7 m	0 ± 0.08	$0 = 19.42$
∞	0 ± 0.08	

9. X efficiency

60% (interval 1 ms)

10. Insulation resistance

At least 200 M Ω at 500 V

11. X time lag

$1.5 \sim 0.5$ ms as measured from X contact ON to start of shutter blade closing.

12. Current consumption

16 mA or less during shutter operation at $B - 3.0$ V and CdS = ∞ .

13. Dark current

10 μ A or less at 3 V before film winding in the conditions specified below:

Front cover: Closed

Rear cover: Closed

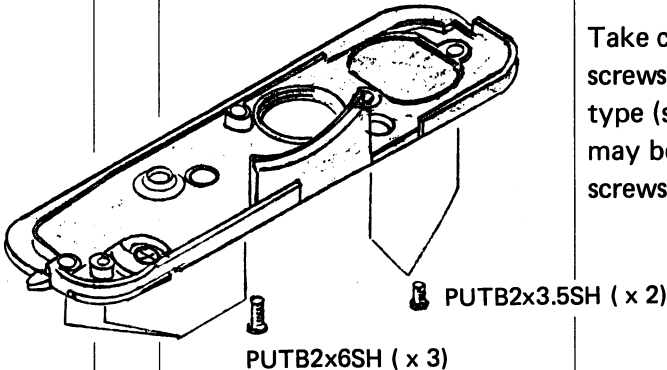
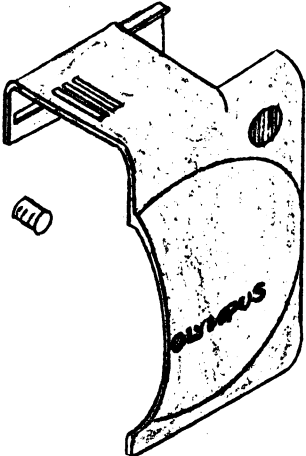
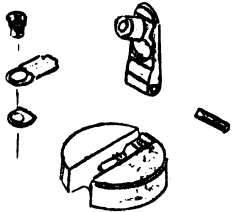
Mode: AUTO

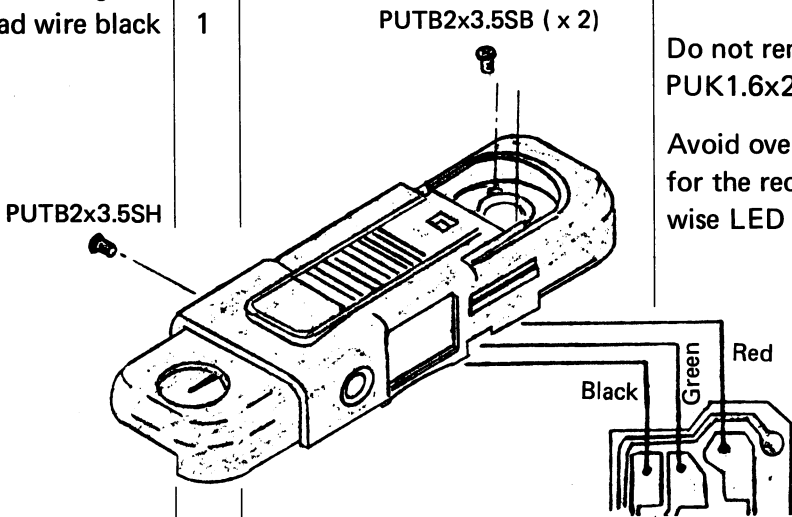
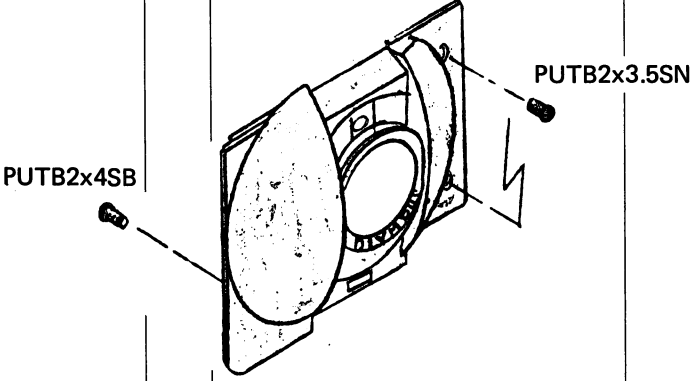
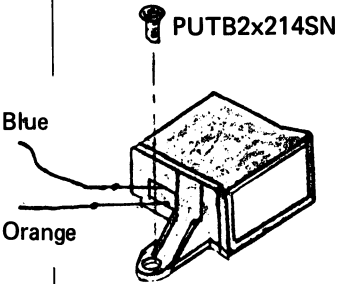
C

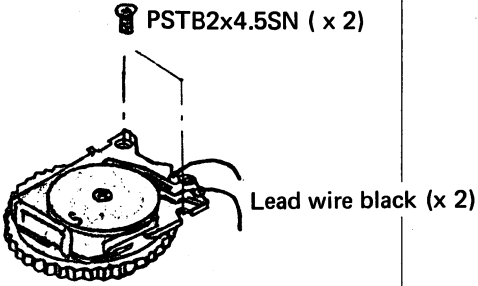
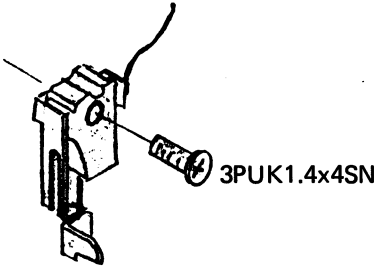
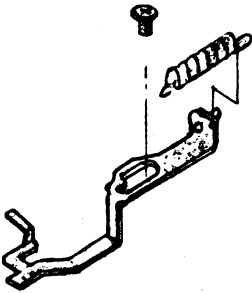
ORDER OF DISASSEMBLY

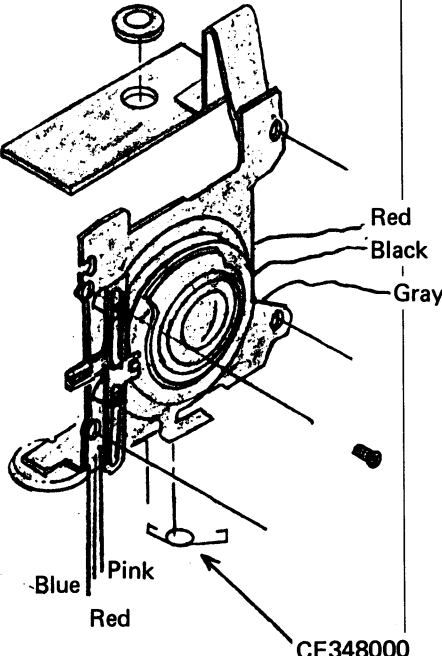
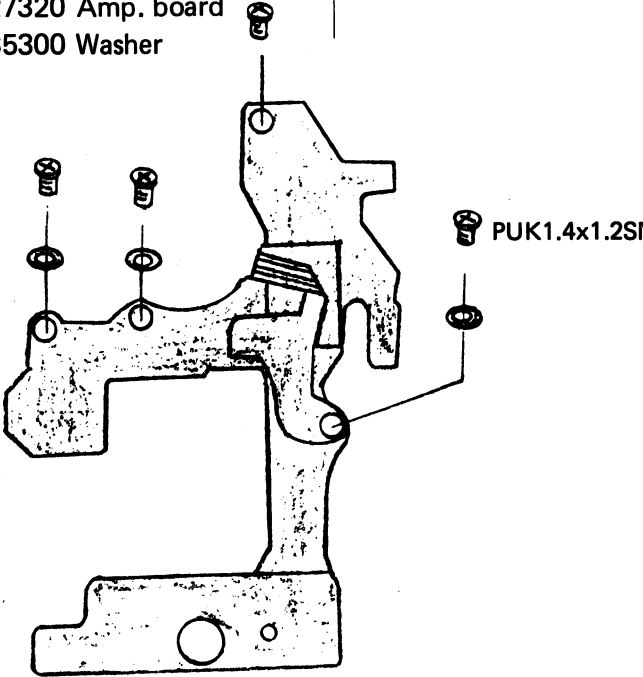
C. ORDER OF DISASSEMBLY

1. How to remove Amp. board

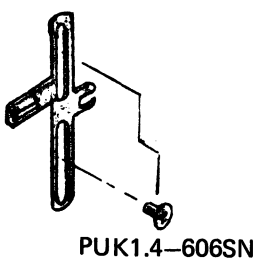
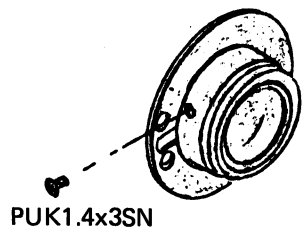
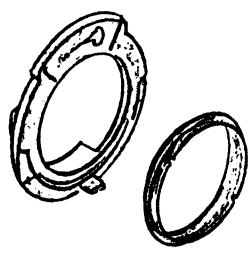
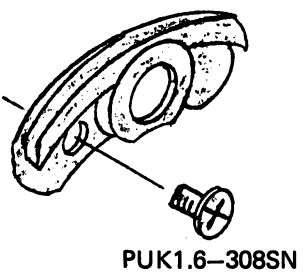
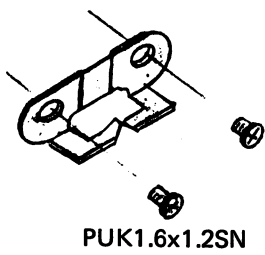
Main part	Parts to remove	Q'ty	Parts coming off	Remarks
1. Bottom plate	PUTB2x3.5SH PUTB2x6SH	2 3	ZE128400 Bottom plate 	Loosen setscrew on the front plate (PUTB2x4SB in the body) before removing the front plate. Take care not to confuse the screws with ones of different type (special screws) which may be used (also in removing screws on other parts).
2. Front cover	PUTB2-213SH	1	CE340500 Front cover CE309700 K roller 	
3. R knob	PUTB2x213SH	1	CE317700 R knob ZK741800 R crank CA873000 R crank pin CE319100 R spring CE317100 R knob seat 	

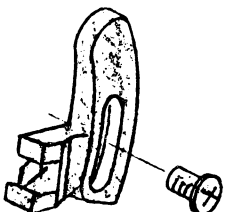
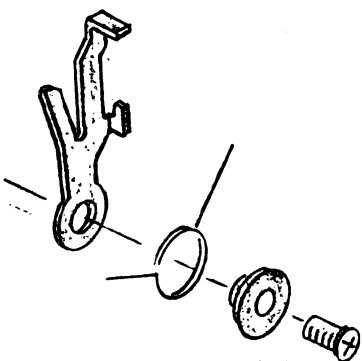
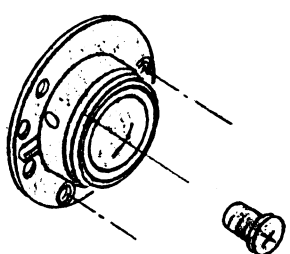
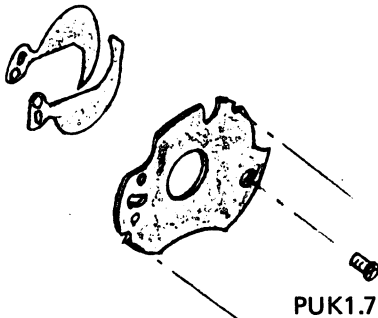
Main part	Parts to remove	Q'ty	Parts coming off	Remarks
4. Top cover	PUTB2x35SB PUTB2x3.5SH Lead wire red Lead wire green Lead wire black	2 1 1 1 1	ZE127200 Top cover 	For removing the top cover, push up its edge on the rear cover side while taking care not to break the front plate. Do not remove setscrew PUK1.6x2.5SN from clip K. Avoid overheating the rand for the red lead wire, otherwise LED may be damaged.
5. Front plate	PUTB2x3.5SN PUTB2x4SB	2 1	ZE128200 Front plate 	
6. F body	PUTB2-212SN Lead wire blue Lead wire orange	1 1 1	ZE127100 F body ass'y 	Shorter LED lead wire (blue): Negative Longer LED lead wire (orange): Positive

Main part	Parts to remove	Q'ty	Parts coming off	Remarks
7. F.W. base	PSTB2x4.5SN Lead wire black	2 2	ZE126800 F.W. plate 	
8. K switch	3PUTK1.4x4SN	1	CE347500 K switch 	
9. AS plate	PUTB2-310SB CE346900	1 1	ZE128100 AS plate 	

Main part	Parts to remove	Q'ty	Parts coming off	Remarks
10. Lens housing	PUTB2x4SN CE348000 CE348200 Lead wire pink Lead wire blue Lead wire red Lead wire gray Lead wire red Lead wire black	5 1 1 1 1 1 1 1 1	Lens housing assembly 	
11. Amp. board	PUK1.4x1.2SN	4	ZE127320 Amp. board CE335300 Washer 	

2. How to remove sector blades

Main part	Parts to remove	Q'ty	Parts coming off	Remarks
1. Focusing lever	PUK1.4-606SN	2	ZE127500 Focusing lever 	Before removing the focusing lever, set it at 2.7 m (8 8) position and fix the front lens group by screwing PUK1.4x3SN into the lens housing. 
2. ASA ring	CE346600	1	ZE128000 ASA ring 	
3. CdS	PUK1.6-308SN	1	EP0018 CdS 	
4. ASA click	PUK1.6x1.2SN	2	CE346500 ASA click 	

Main part	Parts to remove	Q'ty	Parts coming off	Remarks
5. Float lever	PUTB2-213SN	1	CE346800 Float lever CE348800 Float spring  PUTB2-213SN	Cameras manufactured at the initial stage comprise different types of focusing ring, float lever and float cover. These parts must be replaced with new ones as a set. Old focusing ring has two screw holes, whereas the new one has only one screw hole.
6. Lever	PUK1.6x3SN	1	CE345900 Lever CE346100 Spring CE346000 Collar  PUK1.6x3SN	
7. Lens housing	PUK2x3SN	3	EE127620 Lens housing  PUK2x3SN	
8. Sector blade	PUK1.7x4SN	3	SC0287 Blade fastener SC0286 Sector blade  PUK1.7x4SN	

D

OUTLINE OF REPAIRS

ORDER OF ASSEMBLY AND ADJUSTMENT

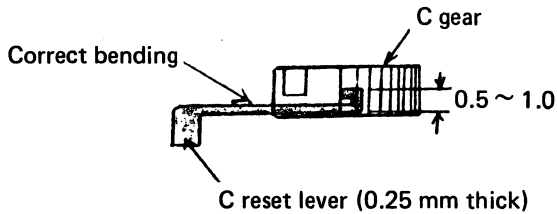
CONTENTS

1. Adjustment of F.W. Base.	D - 2
2. Adjustment of AS Plate.	D - 3
3. Disposal of Lead Wires and Amp. Board	D - 4
4. Check of Shutter Operation	D - 7
5. Adjustment of Oscillating Frequency	D - 9
6. Adjustment of B.C. Voltage and LED Lighting Voltage	D-10
7. Adjustment of E.E. Accuracy and Camera Shake Warning Circuit.	D-10
8. Adjustment of Lens FC.	D-11
9. Standard Currents and Voltage in Circuits.	D-15

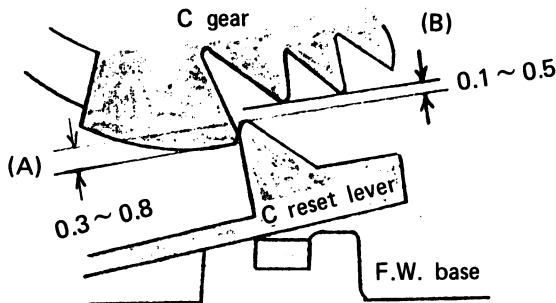
1. ADJUSTMENT OF F.W. BASE

(1) Engagement between C reset lever and C gear

- 1) The C reset lever should be located within a range of 0.5 ~ 1.0 mm as measured from the bottom of the C gear.

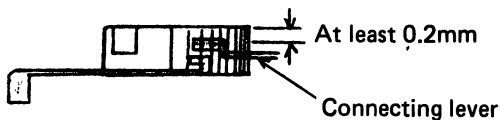


- 2) When the C reset lever is released, it should be engaged with the C gear kept in its stop position as specified below:
Engagement depth measured at portion (A): 0.3 ~ 0.8 mm
Gap between tooth tips of C lever and C gear: 0.1 ~ 0.5 mm

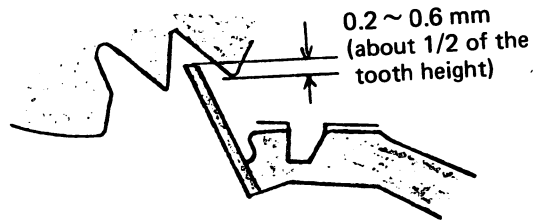


(2) Engagement between connecting lever and C gear

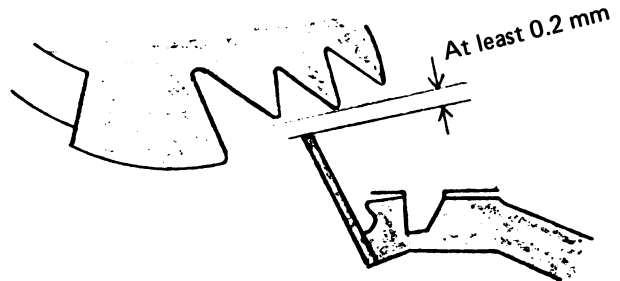
- 1) The connecting lever should be located at a height at least 0.2 mm as measured from the top surface of the C gear and not in contact with the C reset lever.



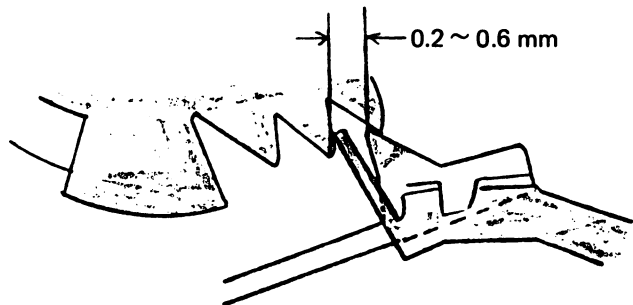
- 2) Set the connecting lever at its immovable position by turning the film winder knob. When the C reset lever is depressed in, the depth of engagement with the C gear should be 0.2 ~ 0.6 mm.



- 3) When the C reset lever is released, the gap between the tip of the connecting lever and that of the C gear should be at least 0.2 mm.

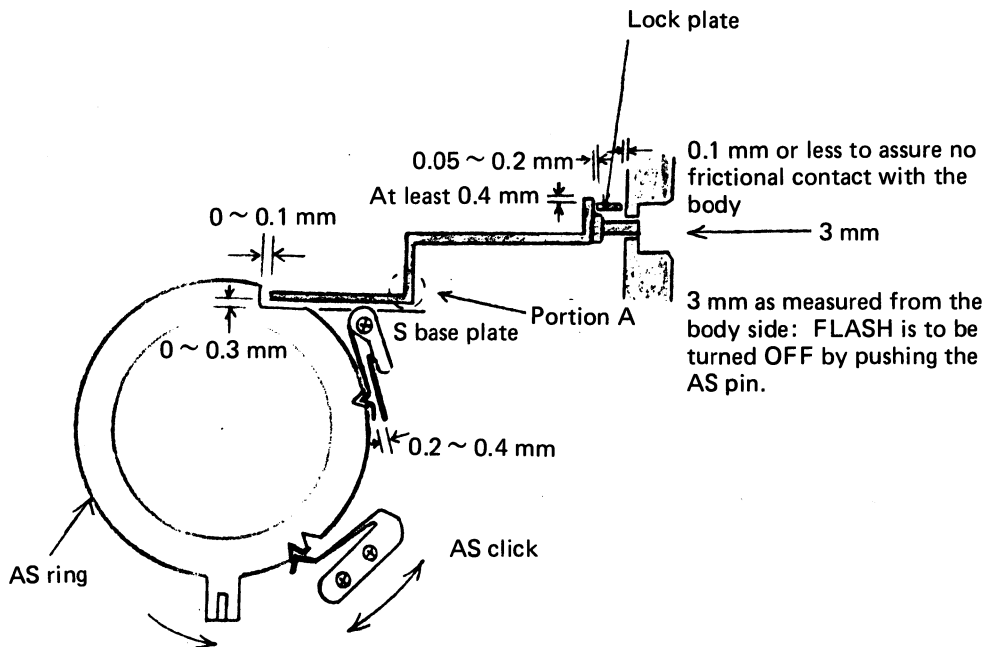


- 4) When the connecting lever has turned the C gear at the maximum angle, the gap between the tip of the C reset lever and the C gear should be 0.2 ~ 0.6 mm.



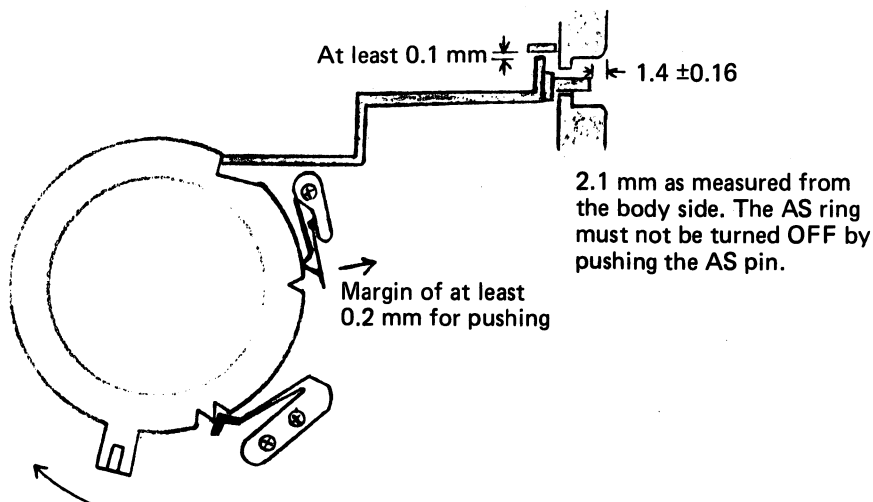
2. ADJUSTMENT OF AS PLATE

(1) Positions and sizes in FLASH OFF condition



- The gap between the AS plate and AS ring should be adjusted by controlling position of the AS click.
- The vertical gaps over and under the AS plate should be adjusted by bending portion A.

(2) Positions and sizes in FLASH ON condition

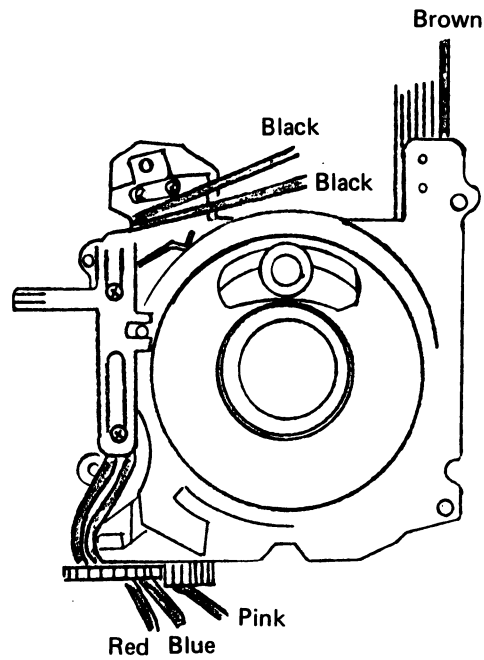


- Engagement depth in the back-forth direction between the AS plate and AS ring should at least be 1/2 of the plate thickness (in adverse condition).
- The AS pin should be located within 1.4 ± 0.16 mm of the body side.

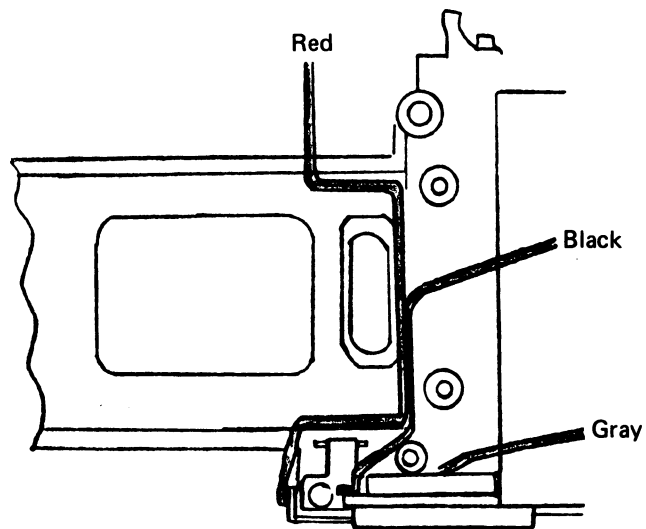
3. DISPOSAL OF LEAD WIRES AND AMP. BOARD

(1) Lens housing assembly

(Disposal of lead wires before docking)



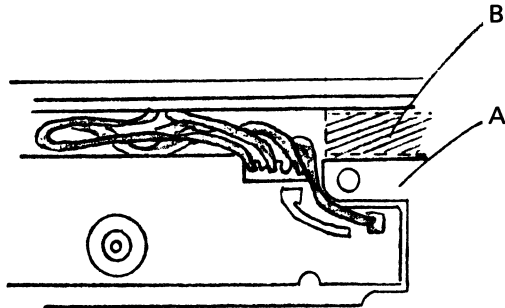
(2) Body assembly



(3) Disposal of lead wires after docking into the body

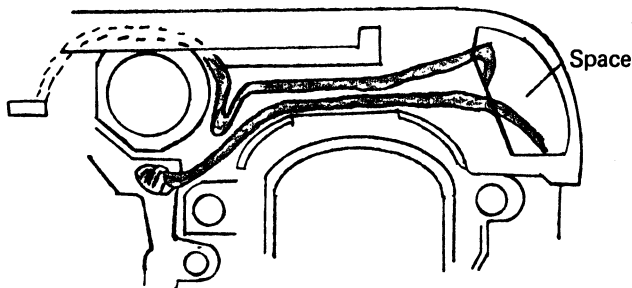
VR base plate

The lead wires must not be arranged on or over the surface of section A. Do not pass the lead wires into section B, otherwise the malfunction of the governor may be caused.



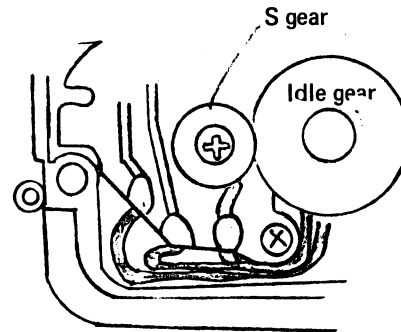
AS base plate

Slackened portions of the lead wires should be accommodated into the space shown on the below.

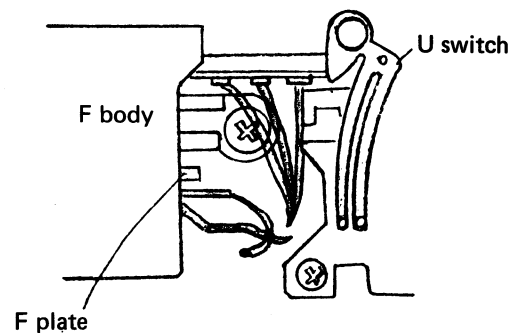


Self-timer base plate

The lead wires must not be brought into contact with the S gear.



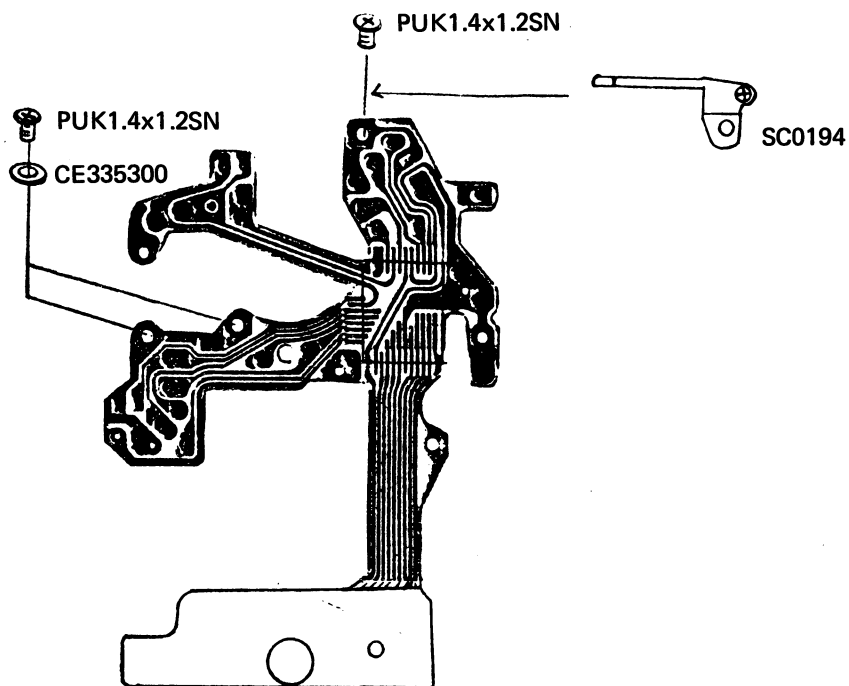
(4) Top cover assembly



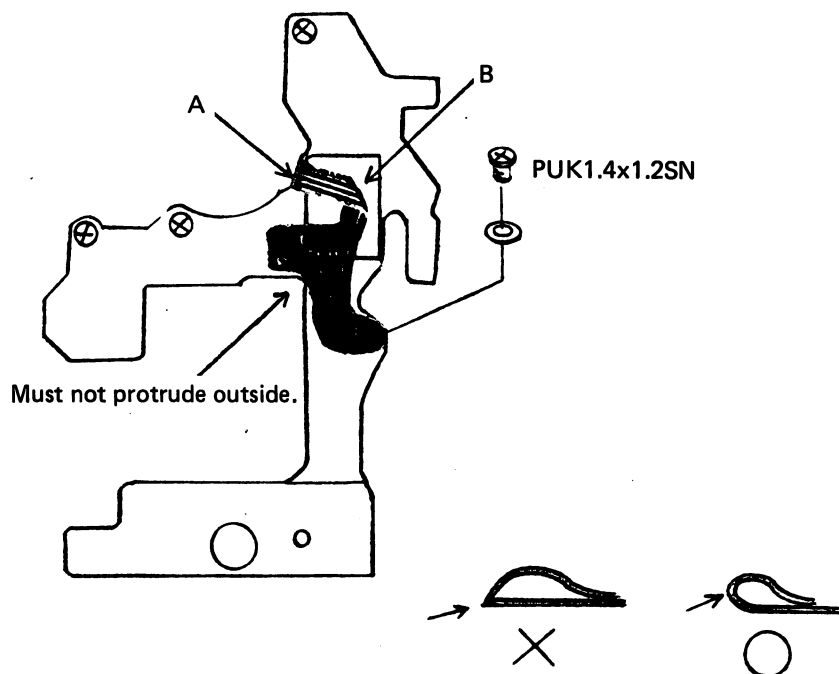
Twist the three lead wires around one another so as to form a single stranded cable by rotating the top cover two or three turns. Then, arrange them under the F.W. base while taking care not to bring into contact with the U switch or F plate.

(5) Amp. board assembly

- 1) Place the amp. board under the X contact (SC0194) and tighten PUK1.4x1.25SN.



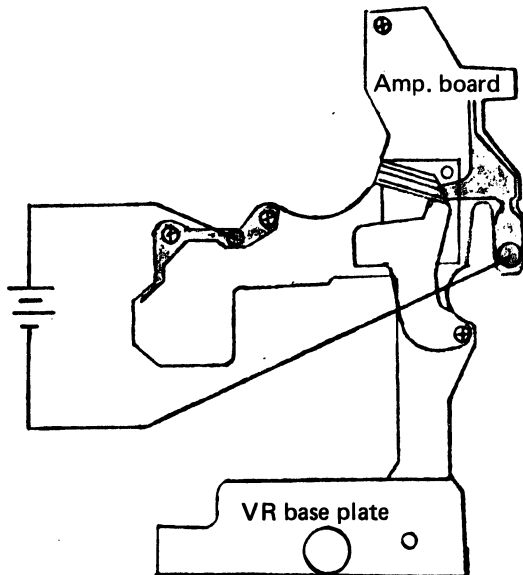
- 2) Bend portion A first and then portion B.
In bending these portions, take care not to break the pattern. Do not form a sharp angle as shown below:



4. CHECK OF SHUTTER OPERATION

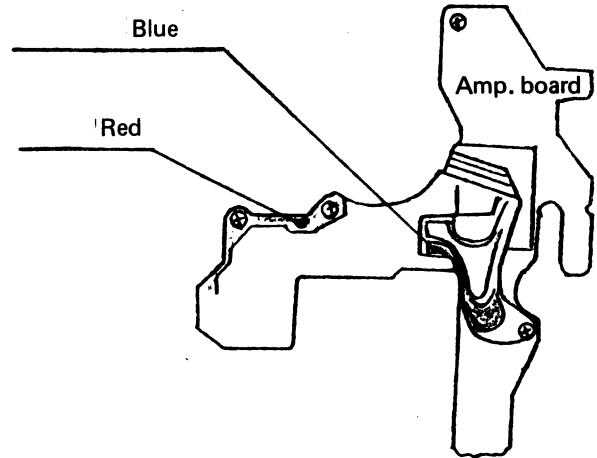
(1) Connection of power source

The C base plate may be used as the positive side of the power source.



(2) Check of B. CHECK circuit

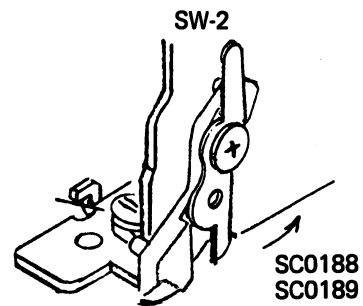
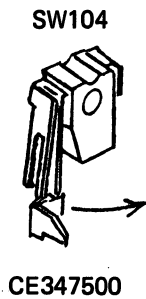
After the blue and red lead wires have been connected in position, the B.C. LED should light normally.



(3) Check of autoflash

SW104 (front cover switch): OFF
SW105 (Flash switch): OFF
SW102 (mechanism clear switch): OFF
(turned OFF by charging the shutter)

Release the shutter (SW-1 ON). Operating time of the shutter is dependent on quantity of light received by the CdS.

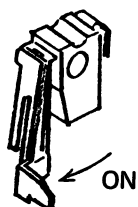


(4) Check of film loading time

SW104 (front cover switch): ON
SW105 (flash switch): OFF
SW102 (mechanism clear switch): OFF
(by charging the shutter)

Release the shutter (SW-1 ON). The shutter operation should terminate within 125 ms (1/8 sec.).

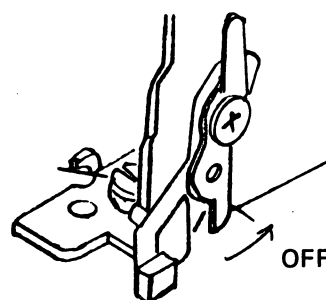
SW104



SW105



SW-2

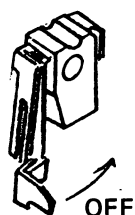


(5) Check of flash time

SW104 (front cover switch): OFF
SW105 (flash switch): ON
SW102 (mechanism clear switch): OFF
(by charging the shutter)

Release the shutter (SW-1 ON). The shutter operation should terminate in 31.2^{+12}_{-10} ms (1/30 sec.).

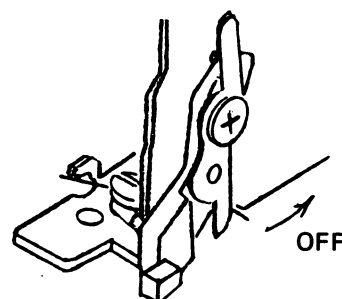
SW104



SW105

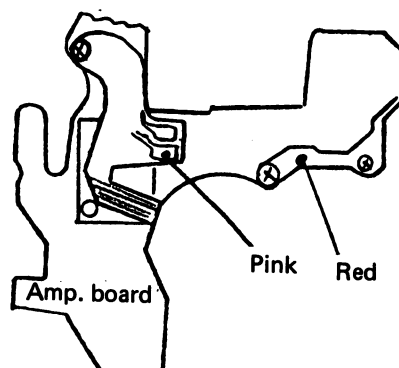


SW102



(6) Check of self-timer

With the switches set in the same positions as those for checking flash time, connect the pink and red lead wires, and release the shutter (SW-1 ON). The LED should flicker and the shutter should be actuated 12 sec. later (the buzzer sounding tone should change 2 sec. before the shutter actuation).



(7) Check of shutter lock

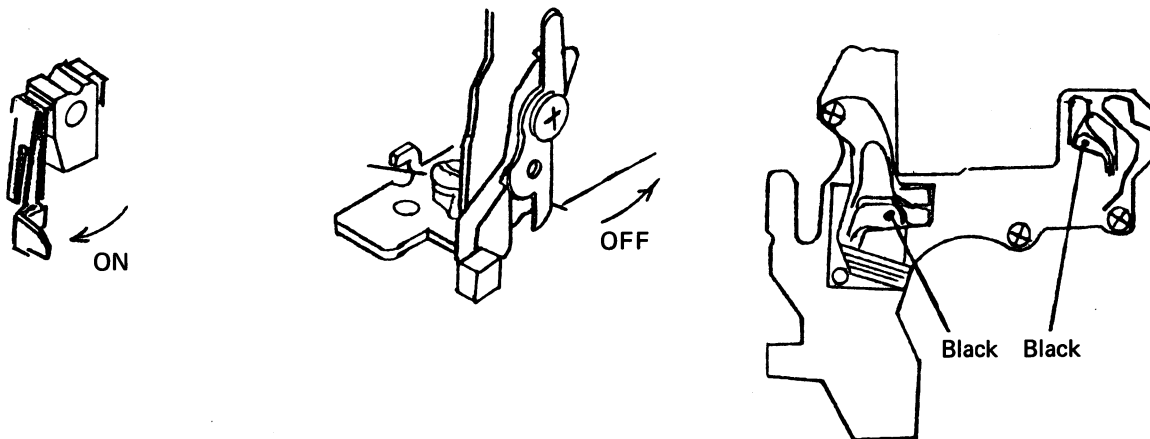
SW104 (front cover switch): ON

Connect the two black lead wires.

SW-2 (mechanism clear switch): OFF

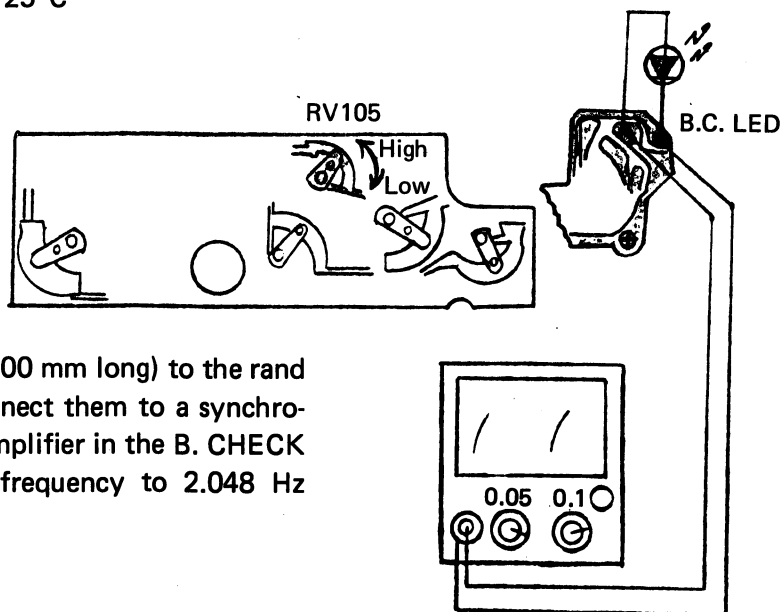
(by charging the shutter)

Release the shutter (SW-1 ON). The shutter must be inoperative.



5. ADJUSTMENT OF OSCILLATING FREQUENCY

2.048 Hz $\pm 5\%$ 1,950 ~ 2,150 Hz B = 3V, 25°C



Solder lead wires (about 100 mm long) to the rand of the B.C. LED, and connect them to a synchroscope. After setting the amplifier in the B. CHECK mode, adjust oscillating frequency to 2.048 Hz $\pm 5\%$ by turning RV105.

Conditions for synchroscope:

VOLTS: 0.05

TIME: 0.1

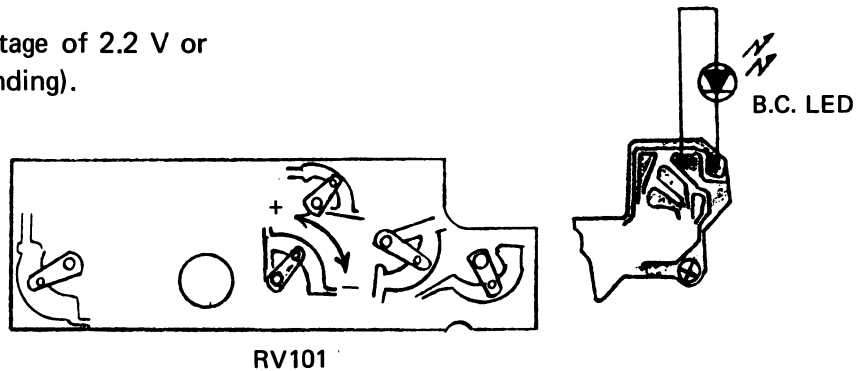
Other conditions: Same as those for OM-2 check.

6. ADJUSTMENT OF B.C. VOLTAGE AND LED LIGHTING VOLTAGE

B.C. voltage: 2.3 ± 0.1 V

The LED should light at a voltage of 2.4 V or higher (the buzzer should sound).

The LED should go out at a voltage of 2.2 V or lower (the buzzer should stop sounding).



If the LED does not light at 2.4 V or higher, turn RV101 clockwise (toward mark "--").

If the LED does not go out at 2.2 V or lower, turn RV101 counterclockwise (toward mark "+").

NOTE:

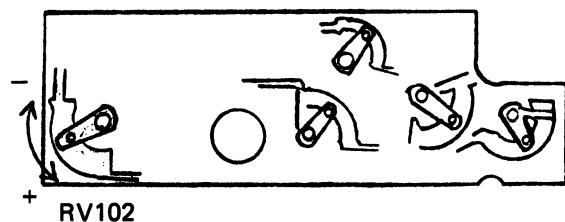
The LED should automatically go out in 96 sec.

7. ADJUSTMENT OF EE ACCURACY AND CAMERA SHAKE WARNING CIRCUIT

(1) Adjustment of BV9

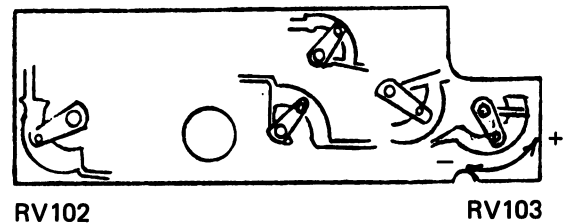
ASA 100

0 ± 1.0



For obtaining a negative EV value, turn RV102 clockwise (toward mark "--").

For obtaining a positive EV value, turn RV102 counterclockwise (toward mark "+").



For obtaining a negative EV value, turn RV103 clockwise (toward mark "--").

For obtaining a positive EV value, turn RV103 counterclockwise (toward mark "+").

NOTE:

BV15 should desirably have a positive value. After adjustment of RV103, BV9 must be checked. After adjustment of RV102, BV15 must be checked. These adjustments and checks should be repeated for accurate repair.

(2) Adjustment of BV15

ASA 100

0 ± 1.0

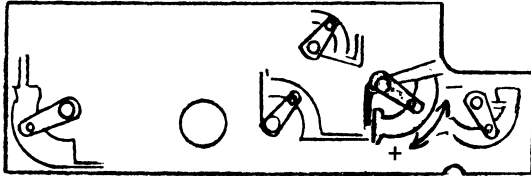
(3) Adjustment of camera shake warning circuit

ASA 100 BV8.6 ± 0.35

The LED should go out at BV8.95 or higher.

The LED should light at BV8.25 or lower.

When the BV9 of the brightness box (K1.3) is used, the LED should go out at ASA 125 and come on at ASA 80.



RV104

If the LED does not light at BV8.25 or lower, turn RV104 clockwise (toward mark "+").

If the LED does not go out at BV8.95 or higher, turn RV104 counterclockwise (toward mark "-").

NOTE:

The LED should automatically go out in 96 sec.

(4) Check of EE accuracy

Check BV4, BV9 and BV15 (ASA 100) respectively. If the specifications are not met, adjust EE and camera shake warning circuit once again.

NOTE:

In measurement of BV4, response characteristic of the CdS must be taken into consideration.

(5) Check of maximum speed

The maximum speed must be at least -2 EV at ASA 800 and BV15. (Be sure to set the sector blades in open condition for this check.)

8. ADJUSTMENT OF LENS FC

FC of the lens should be adjusted in the following three different manners depending on repairing purposes:

- (1) When the shutter is to be removed from the body without disassembling the optical system.
- (2) When the lens is detached from the shutter without changing size d6.

- (3) When the lens is replaced with a new one.

(1) When the shutter is to be removed from the body without disassembling the optical system:

Example:

Replacement of amplifier

Take care not to lose the washer for FC adjustment. After reassembling, check the body and lens for parallelism and FC respectively to confirm that the specifications are met.

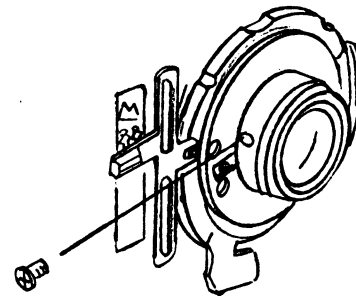
(2) When the lens is to be detached from the shutter without changing size d6:

Example:

Replacement of sector blades (The shutter is not to be removed from the body.)

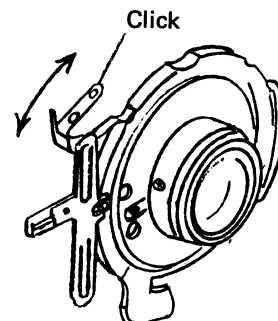
Adjusting procedures

- 1) Fix the front lens group at the $\Phi\Phi$ position (2.7 m) (check of FC).



PUK1.4x3SN

- 2) After reassembling, fix the front lens group and then check FC. If it is deviated, adjust position of the click at $\Phi\Phi$ (2.7 m). (The focusing lever must be positioned within the specified range.)

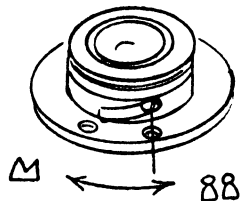


(3) When the lens is to be replaced with a new one:

The lens must be replaced as a set with a new one. Do not attempt to replace the individual lens elements with new ones.

Adjusting procedures

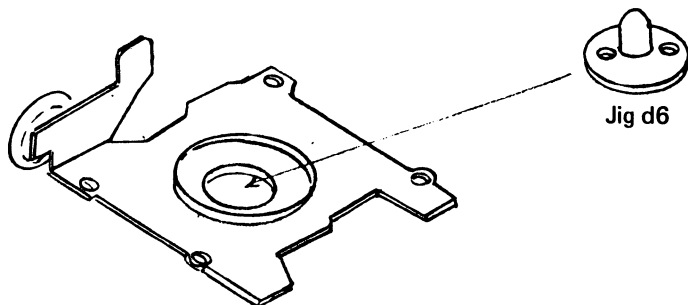
- 1) Attach the lens housing to the shutter.
- 2) Position the float pin of the lens housing as shown in the drawing below:



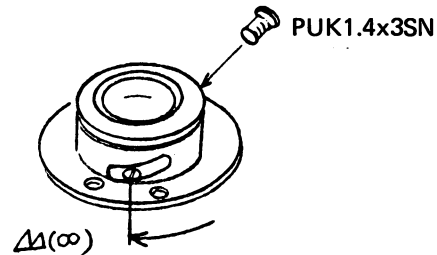
- 3) Open the sector blades.
Turn the idle gear about 5 mm counter-clockwise and allow the front claw to be attracted to the magnet. Turn the idle gear clockwise, and the sector blades are kept in open position.
- 4) Remove the rear frame (from the rear lens).



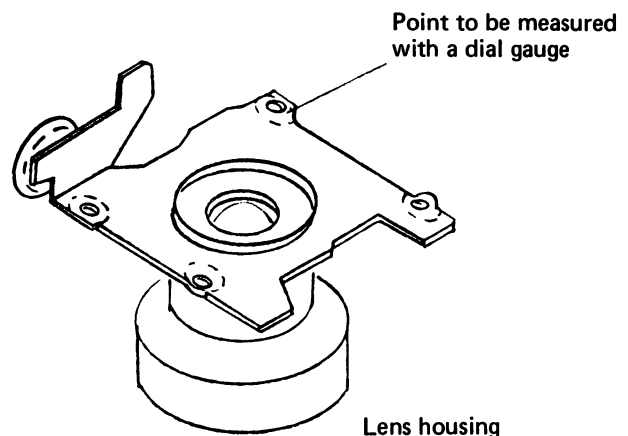
- 5) Set jig d6 into the shutter blade casing from the side of the rear lens.



- 6) Attach the rear frame to the shutter.
- 7) Determination of size d6
Carefully displace the float pin toward ∞ until the front lens is brought into light contact with jig d6. Then, tighten screw PUK to fix the front lens.



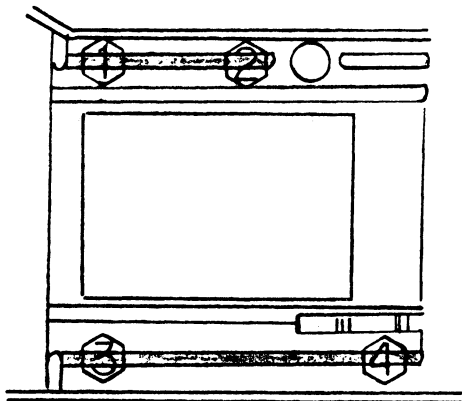
- 8) Remove the rear frame.
After taking out jig d6, check and clean the lens.
- 9) Attach the rear frame to the shutter.
- 10) Checking and adjusting parallelism of shutter base plate
After attaching the lens housing jig to the lens housing, measure position of the shutter base plate at four points with a dial gauge. Positional variation must be within 0.03 mm. If the specification is not met, bond adjusting washers onto the screw holes formed in the C base plate.



- 11) Attach the shutter to the body.
- 12) Checking and adjusting parallelism of body and FC
After attaching the lens housing jig to the lens housing, measure position of the body at four points with a dial gauge. Positional variation must be within 0.05 mm. Read deviation of FC on the collimator. After removing the shutter from the body, bond washers to correct the deviation of FC including that of parallelism. (FC is made positive since the body is designed for negative deviation to reserve adjusting margin.)

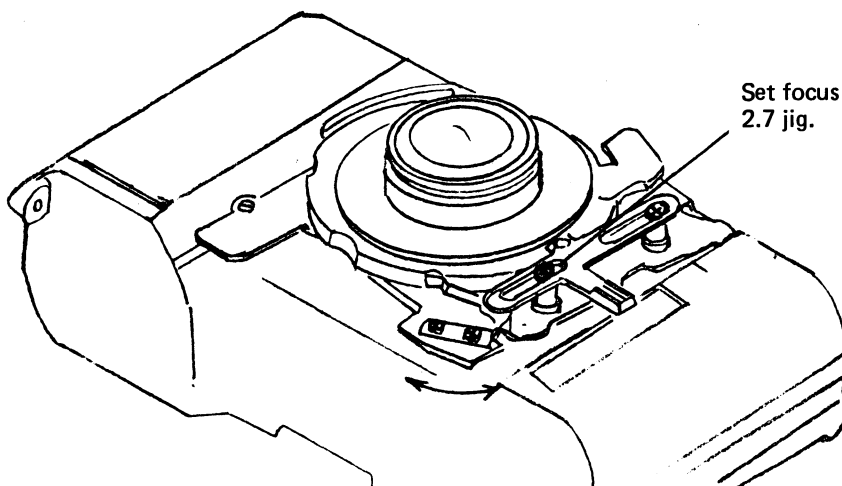
Variation should be within
0.05 mm among check
points 1 through 4.

FC positive = Body size negative → Add
fcNW to cancel the negative deviation



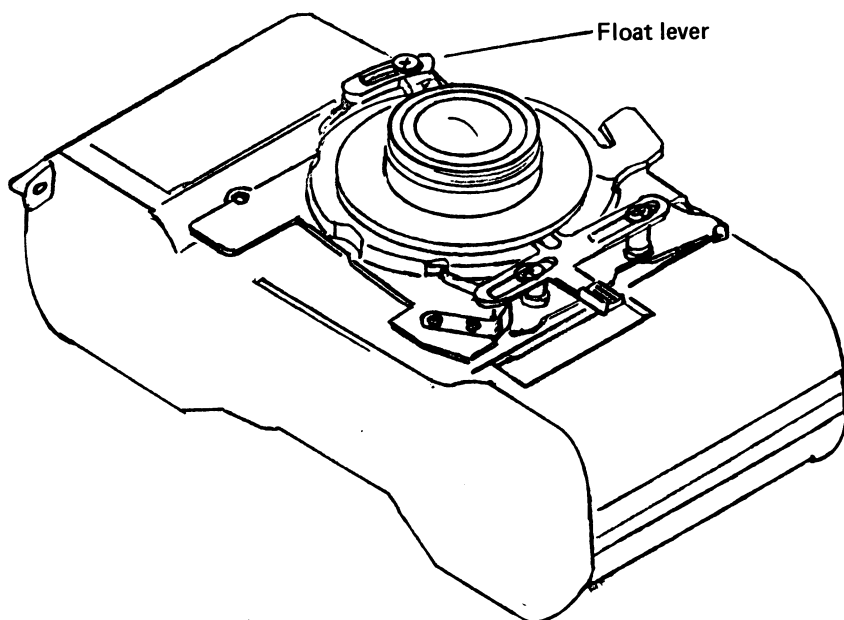
- 13) Attach the shutter to the body
Check the body and lens for parallelism
and FC once again. If the specifications are
not met, adjust them once again.
- 14) Positioning of focusing ring
By using the focus 2.7 jig, drop the click of
the focusing click assembly into the 2.7 m

groove of the focusing ring. Then, tighten
the focusing click.



15) Fix the float lever to the focusing ring while taking care not to deviate the posi-

tion of the focusing click dropped in the groove (2.7 m) of the focusing ring.



16) Check of FC

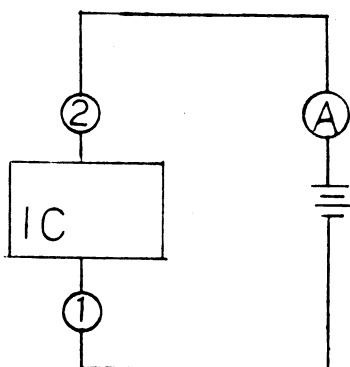
After removing PUK1.4x3SN from the float lens, set the focusing plate at the position of 2.7 m and check FC. If the specification is not met, adjust position of the float lever. With the front cover set at its opened and closed position respectively, turn the focusing lever from ∞ and ∞ position to the 2.7 m position, and check FC to confirm that the specification is met.

- Adjusting standard for repair with GOKOSHA collimator
2.7 m = $-13.9 + 0.03 \pm 0.05$
 ∞ = $+0.03 \pm 0.05$
- Adjusting standard for repair with collimator F = 300 (manufactured by Pearl Optical Company)
2.7 m = -0.41 ± 0.05
 ∞ = $+0.03 \pm 0.05$

9. STANDARD CURRENTS AND VOLTAGES IN CIRCUITS

(1) Current consumption at B = 3.0 V and CdS = ∞

16 mA or less (during shutter operation)



(2) Dark current at B = 3.0 V

10 μ A or less before film winding in the following conditions:

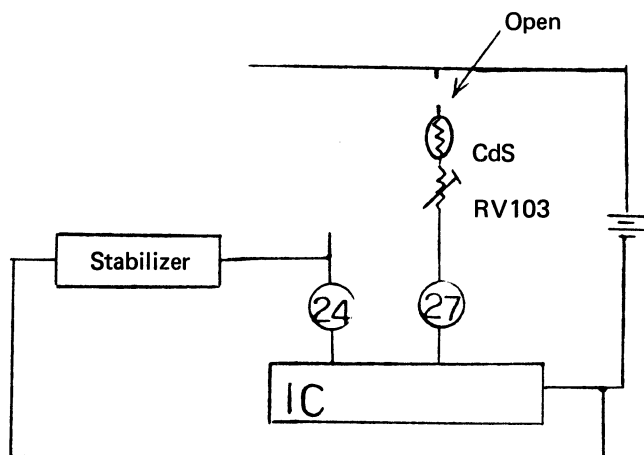
Front cover: Closed

Rear cover: Closed

Mode: AUTO

(3) Input threshold lever (voltage with MG-2 OFF)

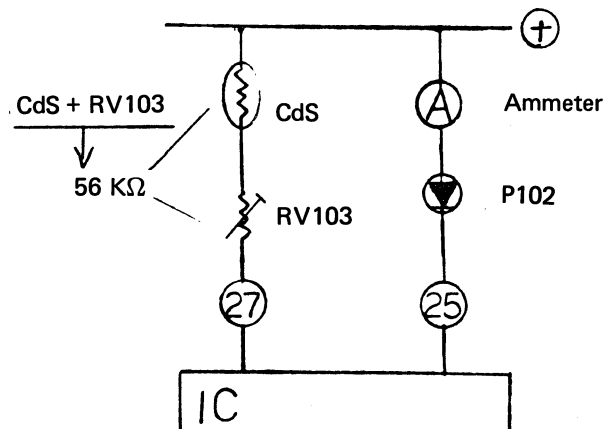
2.45 V (2.40 ~ 2.50 V)



- CdS: Open
- Mode: AUTO
- SW102: OFF
- Voltage should be 2.40 ~ 2.50 V at the moment when MG-2 is turned OFF by lowering voltage on terminal No. 24.

(4) Output current to camera shake warning LED

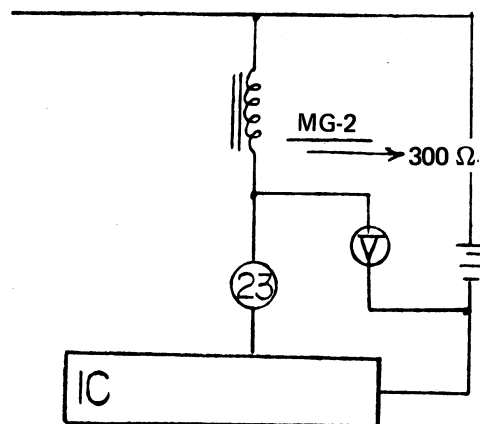
3.0 mA (2.1 ~ 3.9 mA)



(5) Output voltage for turning ON MG-2

0.2 V (max.)

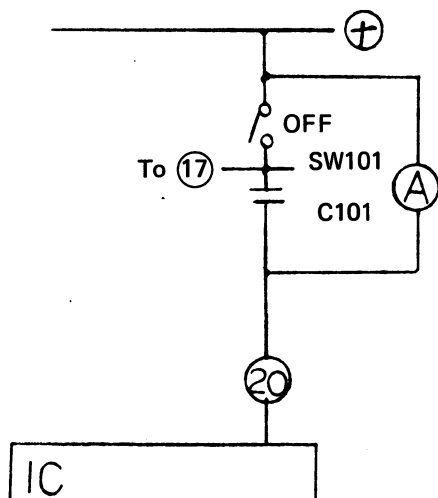
- Terminal No. 24: Shorted to positive side
- Mode: AUTO



(6) Inflow current for shutter release

250 μ A (170 ~ 320 μ A)

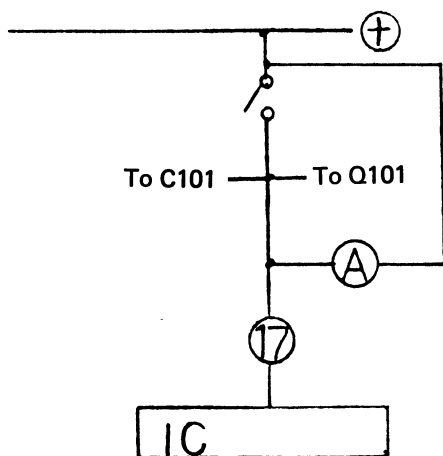
- Terminal No. 24: Shorted to positive side
- SW102, SW103 and SW104: ON
- Mode: AUTO



(7) Release clear current

1.8 μ A (0.3 ~ 4.8 μ A)

- Terminal No. 24: Shorted to positive side
- SW102, SW103 and SW104: ON
- Mode: AUTO

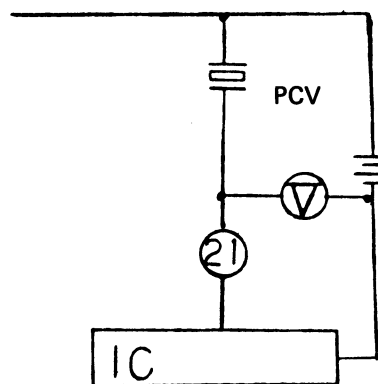


(8) Output voltage for turning ON PCV terminal

0.2 V (max.)

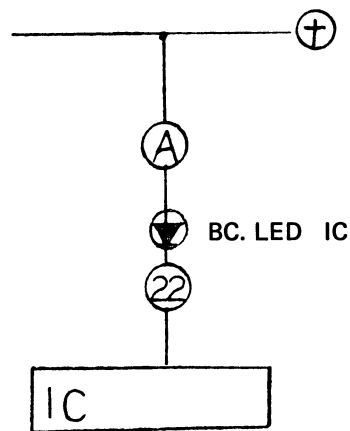
- Terminal No. 24: Shorted to positive side
- Mode: AUTO
- SW102: OFF

Check with a synchroscope.



(9) Output current to B.C. LED

- Terminal No. 24: Shorted to positive side
- Mode: AUTO
- SW102: OFF



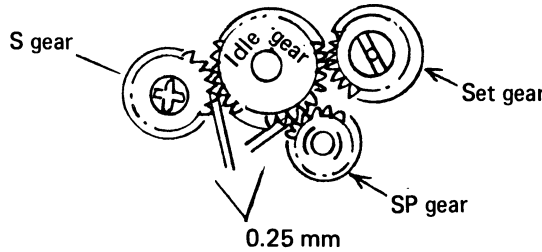
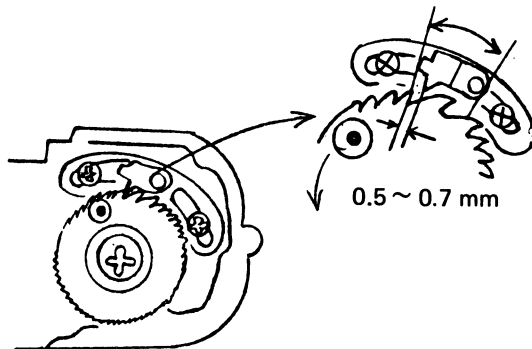
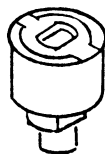
OUTLINE OF REPAIR

CONTENTS

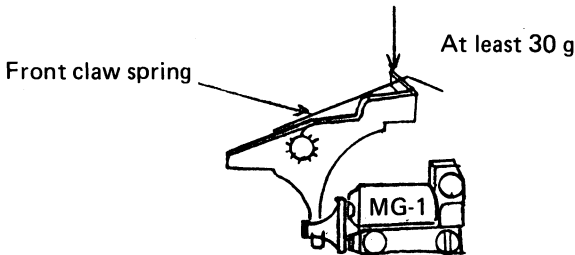
I.	ADJUSTMENTS RELATED TO FILM WINDING AND REWINDING	
1.	Film advancement not smooth	D-18
2.	Shutter released in film advancement	D-19
3.	Sprocket idles or idling impossible	D-19
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I. ADJUSTMENTS RELATED TO FILM WINDING AND REWINDING

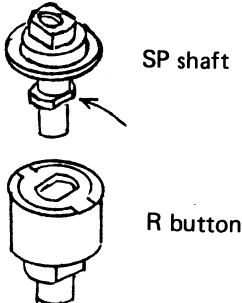
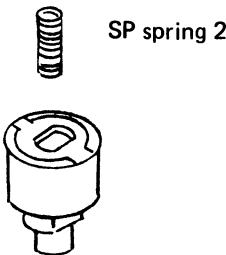
1. Film advancement not smooth

Possible cause	Adjusting procedure	Check
1. Improper engagement between CE339100 S gear and idle gear	Improper fitting of shutter in body. Adjust gap between S gear and idle gear to 0.25 mm.	
2. Improper engagement between CE312700 SP gear and idle gear	Select adequate SP gear. Adjust gap between SP gear and idle gear to 0.25 mm. 	Outside diameters of gears: CE312700 8.22φ CE312800 8.08φ CE312900 7.94φ CE313000 7.80φ CE313100 7.66φ
3. Positional misadjustment of ZJ141000 S upper plate	When S upper plate is pushed in the film advancing direction after completing film winding, gap in ZK735300 S plate ass'y should be 0.5 ~ 0.7. Adjust the gap within the range corresponding to the two teeth at the maximum pitch of ZK735300 S plate ass'y. S pin may be set at any position so far as gap in ZK735300 S plate ass'y. 	
4. Deformation of ZK743000 R button	Remove shutter from body and turn SP gear only. If rotation is not smooth, R button is deformed. 	

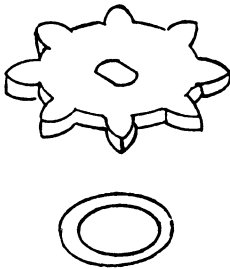
2. Shutter released in film advancement

Possible cause	Adjusting procedure	Check
1. Insufficient attractive force of SC0192 MG-1	Foreign matter, injury or ununiform contact on attracting surface of magnet. Clean, adjust or replace. 	Attracting force of MG-1: At least 30 g ○ Shutter will not be released if front claw spring is too weak.

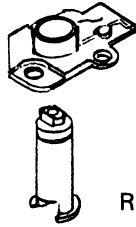
3. Sprocket idles or idling impossible

Possible cause	Adjusting procedure	Check
1. CE312100 PS shaft deformed	If R button cannot be dropped due to deformation or eccentricity of SP shaft at portion indicated by arrow, replace SP shaft with a new one. 	Manually turn sprocket to wind film and make sure that R button is dropped within 1.5 exposure counts.
2. CE312500 SP spring 2 jammed into SP shaft	SP spring 2 deformed and jammed between SP shaft and R button, making the latter inoperative. Replace SP spring. 	

4. Uneven intervals between picture frames

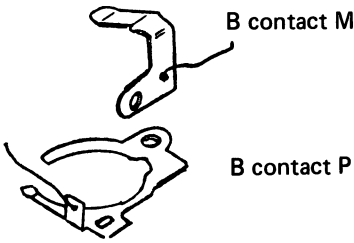
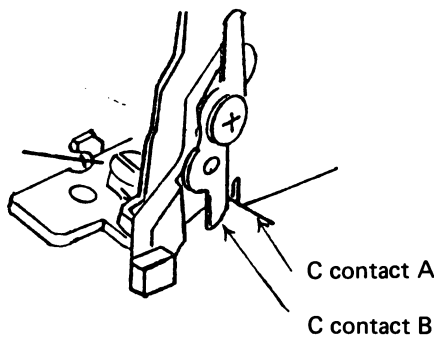
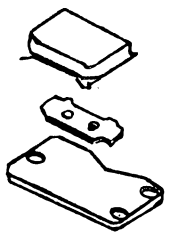
Possible cause	Adjusting procedure	Check
1. Large play of CE312100 SP shaft	Sprocket has a large play if the portion indicated by arrow has a large play between SP shaft and R button. Replace R button with a one allowing little play. 	
2. Improper friction on CE313500 sprocket	After disassembling sprocket, adjust bending of SP seat or replace it. 	Friction on sprocket in its idle condition: 30 ± 10 g (as measured at root of teeth)
3. Improper friction on CA752900 spool	Check and adjust friction on spool 	

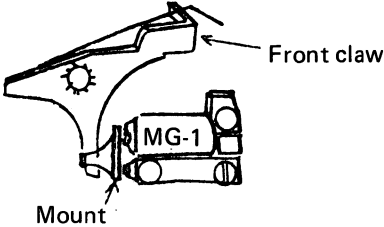
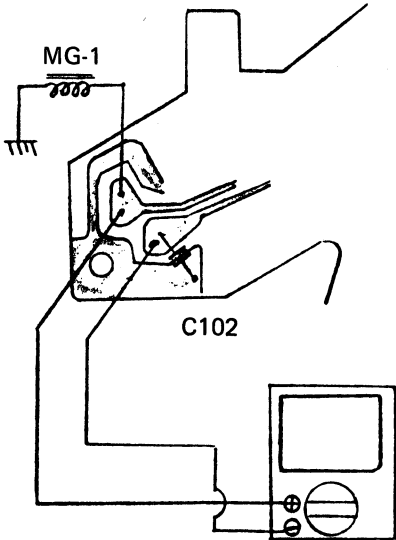
5. Film rewinding impossible

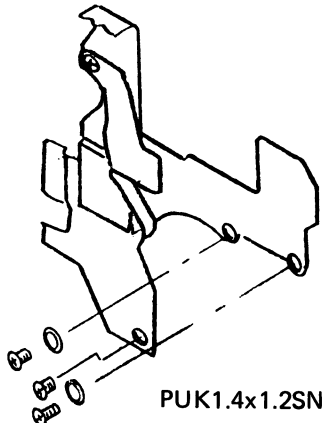
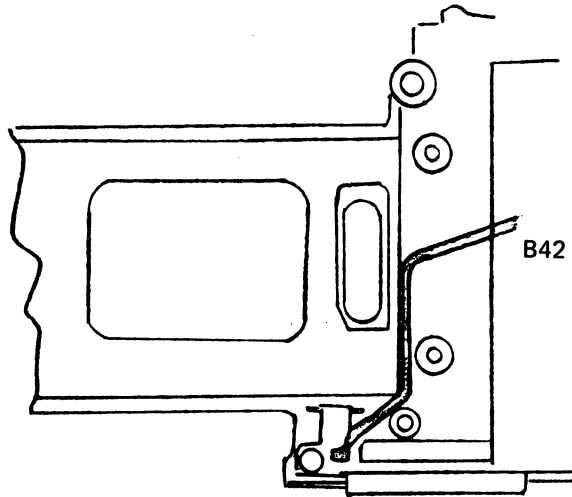
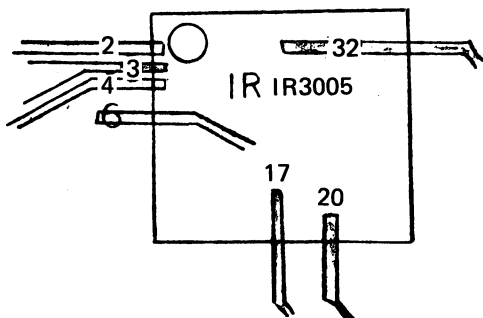
Possible cause	Adjusting procedure	Check
1. Friction too large on CE341800 fork	Replace R form or apply grease (H26) to R fork and R bearing.  R fork Be sure to use Grease H26, otherwise malfunction may be caused due to deterioration with time.	

II. ADJUSTMENTS RELATED TO SHUTTER RELEASE

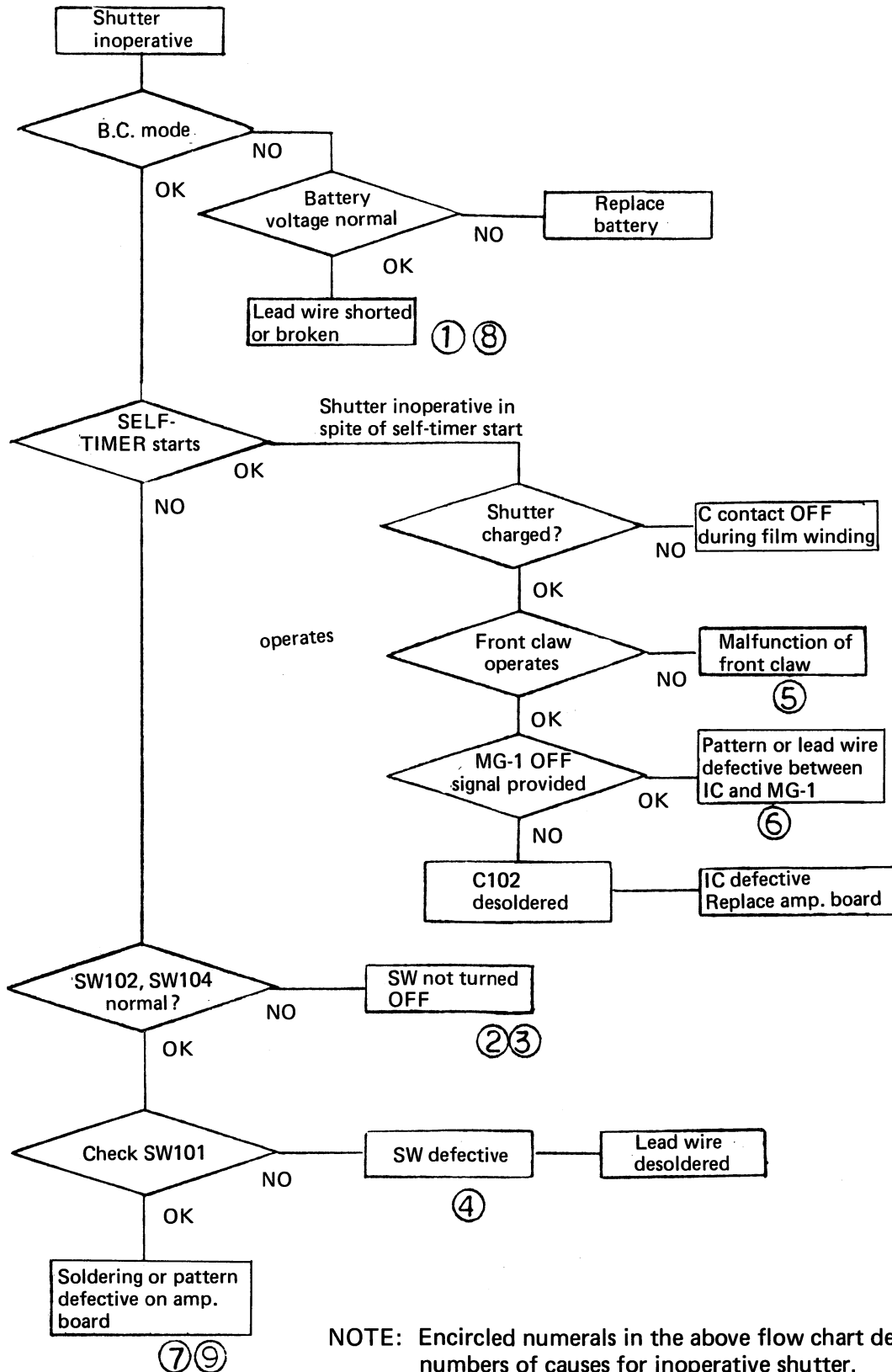
1. Shutter inoperative

Possible cause	Adjusting procedure	Check
1. Poor contact on battery	Correct deformation of contacts to increase contact pressure.  B contact M B contact P	
2. SC0189 C contact not turned OFF (SW-2)	C contact is always kept ON due to deterioration or deformation.  C contact A C contact B	Film is unexposed if C contact is turned ON during shutter operation.
3. CE347500 K switch not turned OFF (SW-3)	K switch is always kept ON due to deterioration or deformation. Adjust bending or set position, or replace.  K switch	K switch should be turned ON by opening front cover and then moving it 0.5 mm in closing direction. K switch should be turned OFF when front cover is moved 1.5 mm in closing direction.
4. Release switch not turned ON and OFF	1. Switch cannot be turned ON due to defective release rubber. 2. Switch cannot be turned OFF due to improper returning of release button.  Button Release rubber Button base plate	

Possible cause	Adjusting procedure	Check
5. Malfunction of front claw	1. Front claw spring detached. Check and repair. 2. Front claw spring too weak. Check and repair 3. Oil adhering to mount of MG-1. Wipe oil off MG-1, mount and lever. If excessive amount of oil is adhering to tension spring, wipe it off. 	Note that shutter is released during film advancement if front claw spring has too strong force. If oil is adhering to mount, the symptom will disappear once shutter operates. However, the symptom will surely recur when camera is rested for a day or longer. Be sure to wipe off oil.
6. SC0192 MG-1 defective, lead wire or pattern broken	Check for MG-1 OFF signal. If shutter is inoperative with MG-1 OFF signal, check MG-1 for electrical continuity. Also check lead wire and pattern. 	Coil resistance: $50 \pm 5\Omega$

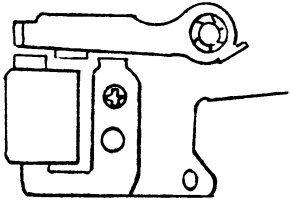
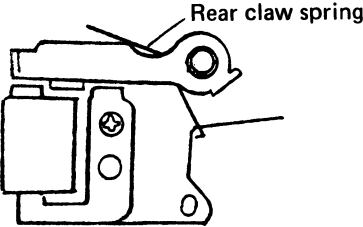
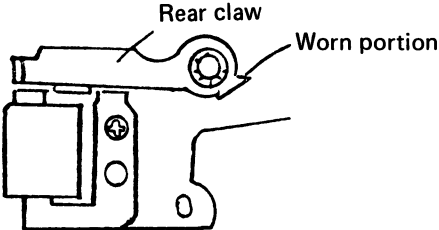
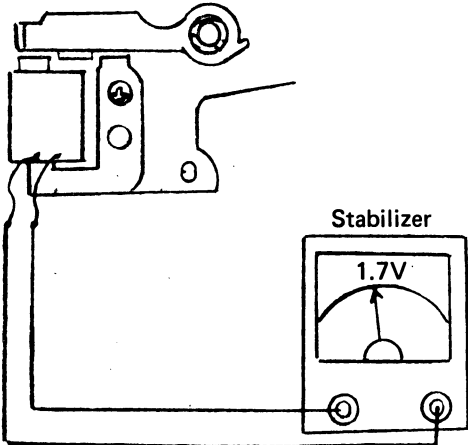
Possible cause	Adjusting procedure	Check
7. Setscrew loosened on ZE1273200 Amp. board	Electrical continuity not established on positive side of battery due to loosened setscrew. Retighten setscrew.  PUK1.4x1.2SN	
8. Lead wire on negative side of power source desoldered and shorted to S base plate	Check and repair soldered condition of lead wire.  B42	
9. IC terminals desoldered	Shutter made inoperative due to desoldered terminals (2), (3), (4), (6), (17), (20), (32). Check and repair soldered conditions.  IR IR3005	

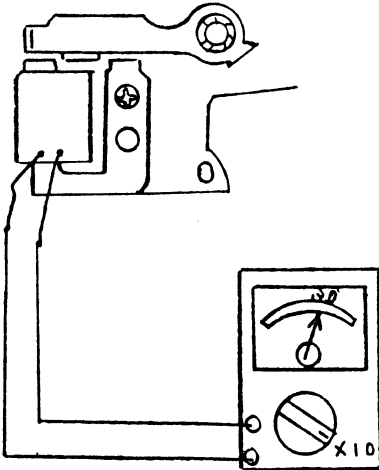
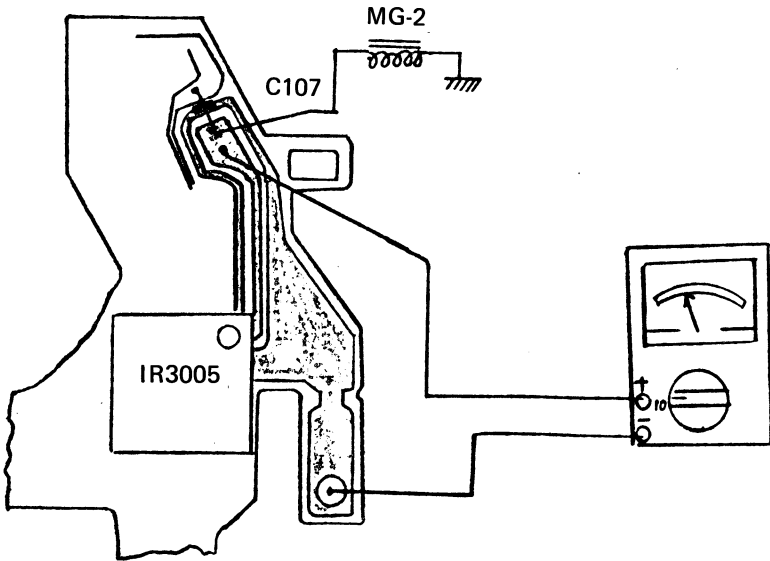
Checking sequence for inoperative shutter

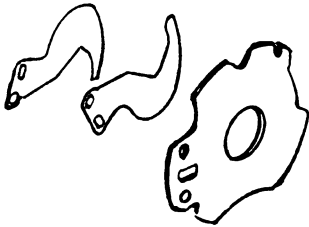
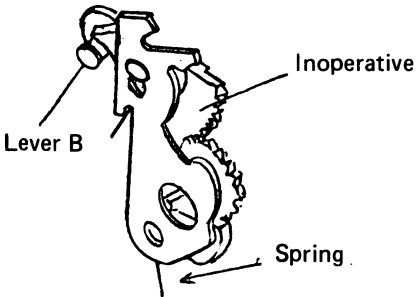
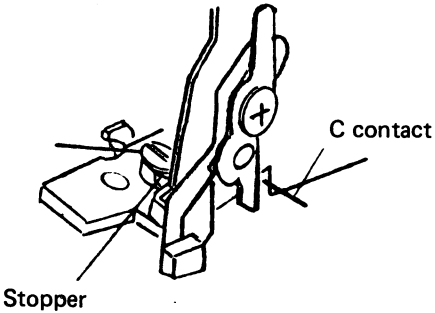


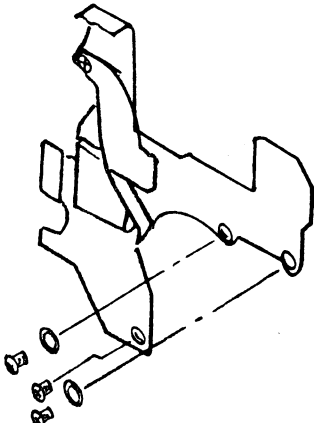
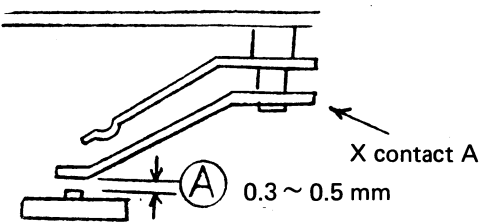
NOTE: Encircled numerals in the above flow chart denote serial numbers of causes for inoperative shutter.

2. Film unexposed

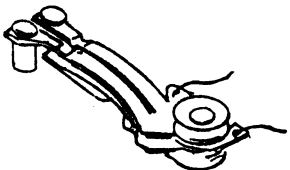
Possible cause	Adjusting procedure	Check
1. SC0193 MG-2 contaminated	Clean attracting surface of MG-2 and rear claw 	
2. Rear claw spring detached	Check and adjust rear claw spring 	
3. SC0288 rear claw worn out	Rotating shaft cannot stop due to wearing of rear claw 	
4. Attracting force of MG-2 too weak	When front claw is released by applying 1.7 V to MG-2, rear claw should be held in position and shutter should be opened. Release shutter several times. If it misoperates even once, MG-2 is defective or mispositioned. 	Holding voltage: At least 1.7 V

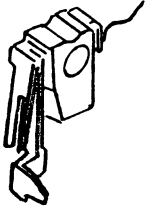
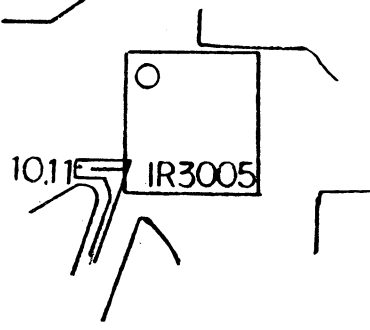
Possible cause	Adjusting procedure	Check
5. Lead wire of MG-2 broken or desoldered	Check MG-2 for electrical continuity. Resistance should normally be $300 \pm 30\Omega$. 	Coil resistance: $300 \pm 30\Omega$
6. IC defective	Check MG-2 for hold signal. If no signal is provide and film is not exposed, IC defective. IC terminal No. 23 desoldered or pattern broken. 	Circuit tester reads 3 V before releasing shutter. Hold signal is provided if tester pointer deflects momentarily toward 0 V by turning ON SW1.

Possible cause	Adjusting procedure	Check
7. Adhesive contamination on sector blades	Even if sector blades are inoperative due to adhesive contamination, shutter operates without exposing film 	Do not use LEK, ether or similar solvent to clean sector blades which are made of polyester resin.
8. Governor inoperative	When governor is inoperative, lever cannot follow lever B. Therefore, sector blades do not open in spite of shutter operation, resulting in unexposure of film. 	
9. SC0189 C contact unstable	If C contact is turned ON due to malfunction of stopper after shutter is released and before sector blades are opened, OFF signal is applied to MG-2, which stops holding rear claw, thereby causing unexposure of film. 	

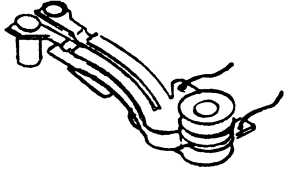
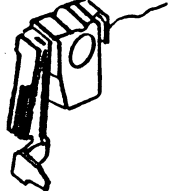
Possible cause	Adjusting procedure	Check
10. Setscrew loosened on Amp. board	When setscrew is loosened to lose electrical continuity, shutter is made inoperative. When electrical continuity is lost intermittently, however, shutter operates without exposing film. 	
11. Deviation of SC0194 X contact A	This symptom occurs only when strobo is used. X contact is turned ON by shock or vibration caused by engagement or attraction of rear claw, and MG-2 is turned OFF by noise. Readjust X contact A. 	

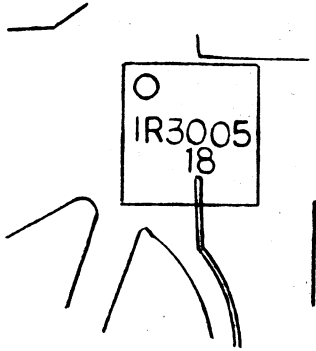
3. Loading time not settable

Possible cause	Adjusting procedure	Check
1. U switch (SW103) not turned OFF	1. U switch deformed or deteriorated. Correct. 2. Check and repair C reset lever. 3. Check and repair soldered condition of lead wire. 	

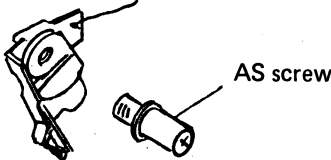
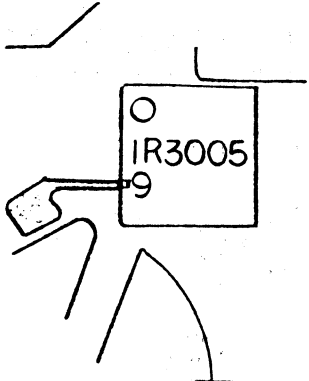
Possible cause	Adjusting procedure	Check
2. K switch (SW104) not turned ON	1. K switch deformed or deteriorated. Correct. 2. Check and repair soldered condition of lead wire. 	
3. IC desoldered	IC terminal (10) or (11) desoldered. 	

4. OFF lock ineffective

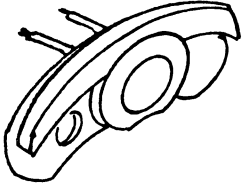
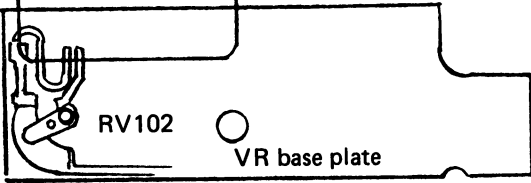
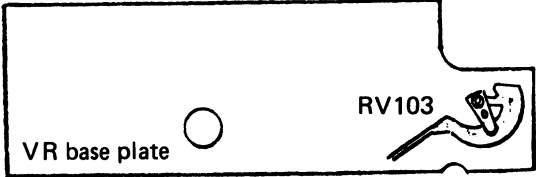
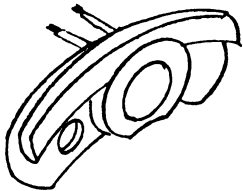
Possible cause	Adjusting procedure	Check
1. U switch not turned ON	1. Check and repair C reset lever. 2. U switch deformed or deteriorated. Correct. 3. Check and repair soldered condition of lead wire. 	
2. K switch not turned ON	1. K switch deformed or deteriorated. Correct. 2. Check and repair soldered condition of lead wire. 	

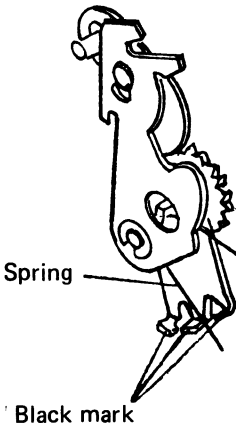
Possible cause	Adjusting procedure	Check
3. IC desoldered	IC terminal (18) desoldered. 	

5. Flash time not settable

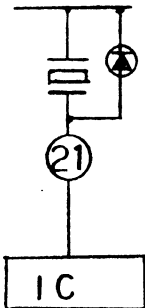
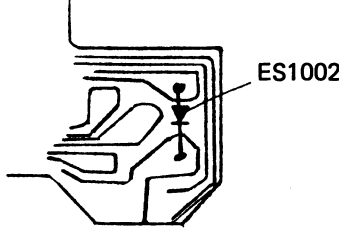
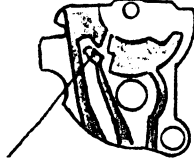
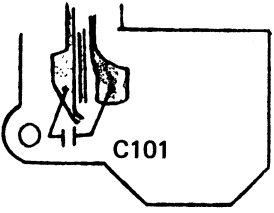
Possible cause	Adjusting procedure	Check
1. AS switch (SW105) not turned ON	1. AS switch deformed or deteriorated. Correct. 2. Check and repair soldered condition of lead wire. 3. AS screw loosened. Tighten. 	
2. IC desoldered	Terminal desoldered on IC (9). 	

6. EE inaccurate

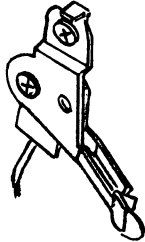
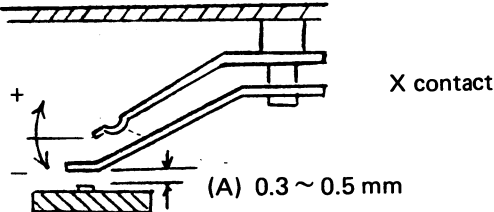
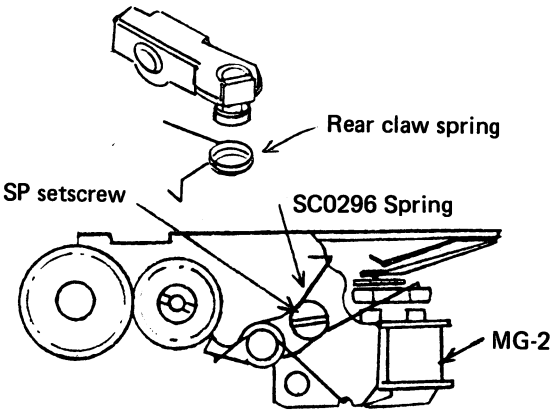
Possible cause	Adjusting procedure	Check
1. CdS lead wire broken	1. CdS lead wire broken. Correct. 2. CdS lead wire desoldered. Repair. 	
2. RV102 misadjusted	1. Adjust RV102. 2. Pattern broken on VR102. 	
3. Fine adjustment of RV103 impossible	BV15 misadjusted. Readjust or replace Amp. board. 	
4. Improper gamma characteristic of CdS	BV4 time too long. Replace CdS. 	
5. SC0199 spring detached	When spring is detached, governor becomes inoperative, making EE inaccurate at low brightness. Set spring properly in position. 	

Possible cause	Adjusting procedure	Check
6. Deviation of SC0282 spring	Positional deviation of spring changes operating speed of lever B, thereby making EE inaccurate. inaccurate.  Engage spring with a hook having black mark. In case of no black mark, engage spring with the central hook.	Sector blades must be fully opened at BV 8.6 or less (ASA 100)

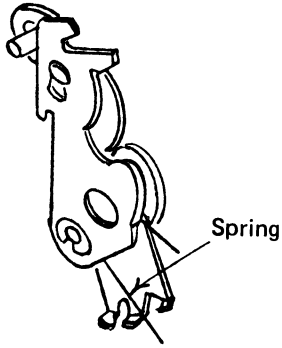
7. Shutter malfunction

Possible cause	Adjusting procedure	Check
1. Shutter inoperative after opening or closing dust barrier abruptly	PCV is actuated by vibration to flow current into IC, which operates shutter erroneously. Add diode (diode used in ES 1002 or LEE22).  	
2. Shutter inoperative after returning self-timer lever quickly	Q101 transistor is turned ON by returning SW106 quickly, making shutter inoperative. Replace self-timer base plate with new type. Replace C101 0.04 μF with a new capacitor of 0.01 ~ 0.02 μF.   This pattern is longer on new type of base plate.	

8. Asynchronization

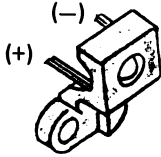
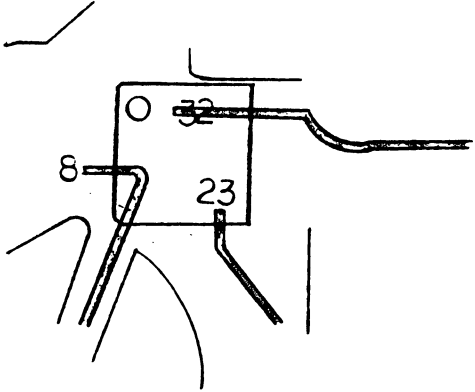
Possible cause	Adjusting procedure	Check
1. No electrical continuity 2. Insulation degraded	1. X contact deteriorated, deformed or contaminated. 2. Check and repair soldered condition of lead wire. 	
3. Improper time lag	Adjust gap under X contact.  If gap (A) is less than 0.3 mm, X contact is turned ON due to shock caused by attraction of rear claw during use of strobo. This allows noise to turn ON MG-2, thereby operating shutter without exposing film.	
4. Erroneous flashing of strobo	Rear claw is weak enough to be actuated for turning X contact ON with slight vibration. If SC0289 Rear claw spring is made of wire 0.13 ϕ , replace it with one made of wire 0.2 ϕ , or remove the bottom plate and add special parts SC0296 Spring and SC0297 SP Set-screw to shutter assembly. 	Rear claw spring made of wire 0.13 ϕ is used in cameras manufactured for the initial 3 ~ 4 months. Special parts are supplied without order. They are stocked though not mentioned in exploded drawing or parts list.

9. Shutter not fully opened

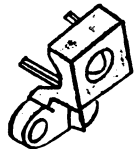
Possible cause	Adjusting procedure	Check
1. Sector blades not fully open at BV8.6 (ASA 100)	If sector blades do not fully open in autoflash mode, film exposure cannot be assured. Sector blades must be fully opened at BV8.6 or less. Adjust position of spring.  The diagram shows a mechanical component, likely a sector blade, with a coiled spring attached to it. An arrow points from the word 'Spring' to the coiled spring.	

III. OTHER ADJUSTMENTS

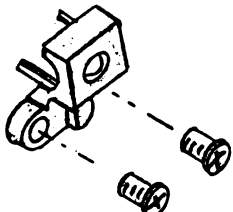
1. B.C. LED not light

Possible cause	Adjusting procedure	Check
1. ED0102 LED defective or desoldered	1. Check and replace LED if defective. 2. Check and repair soldered condition of LED. 	
2. IC desoldered	Check and repair soldered conditions of IC terminals (22), (32), (8). 	

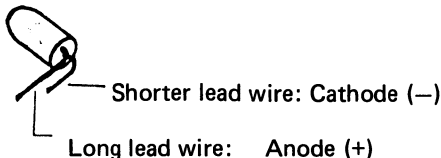
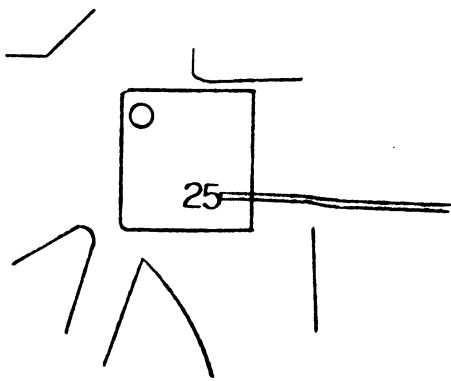
2. B.C. LED too dark

Possible cause	Adjusting procedure	Check
1. LED defective	Check and replace LED. 	

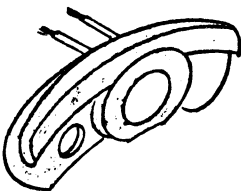
3. B.C. LED miscentered

Possible cause	Adjusting procedure	Check
1. Positional deviation of LED	Check LED to see if its glowing area is located at center of LED cover of top cover. Retighten setscrews for LED. 	

4. Camera shake warning LED not light

Possible cause	Adjusting procedure	Check
1. AS switch (SW105) cannot be turned OFF	Check and repair AS switch. 	
2. ED0114 LED defective or lead wire desoldered	1. Check and replace LED if defective. 2. Check and repair soldered condition. 	
3. IC desoldered	IC terminal (25) desoldered. Repair. 	

5. Camera shake warning LED not extinguished

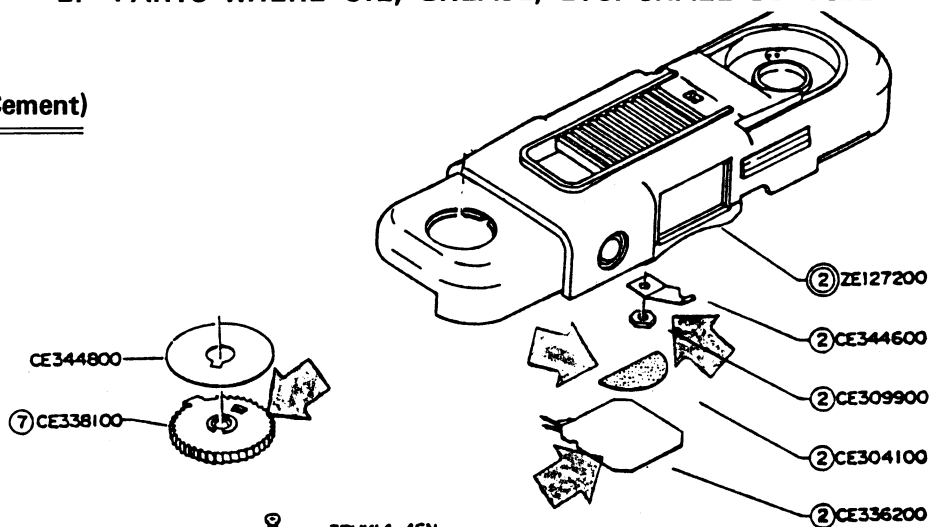
Possible cause	Adjusting procedure	Check
1. EP0018 CdS lead wire desoldered or broken	Check and repair CdS. 	

E

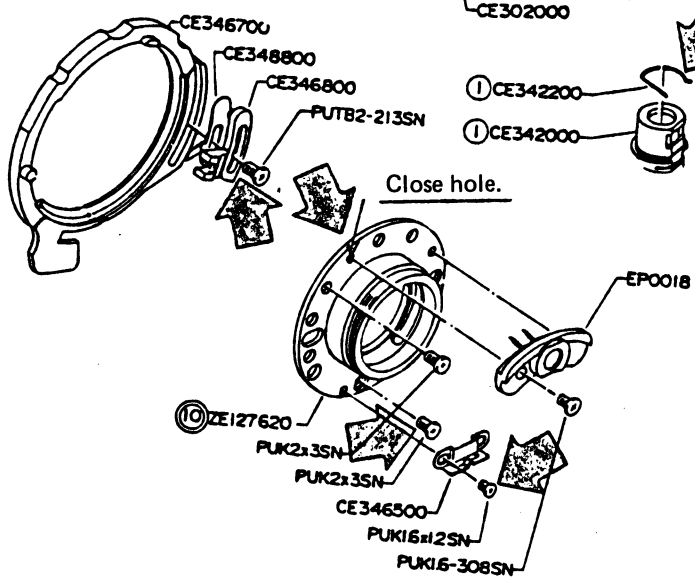
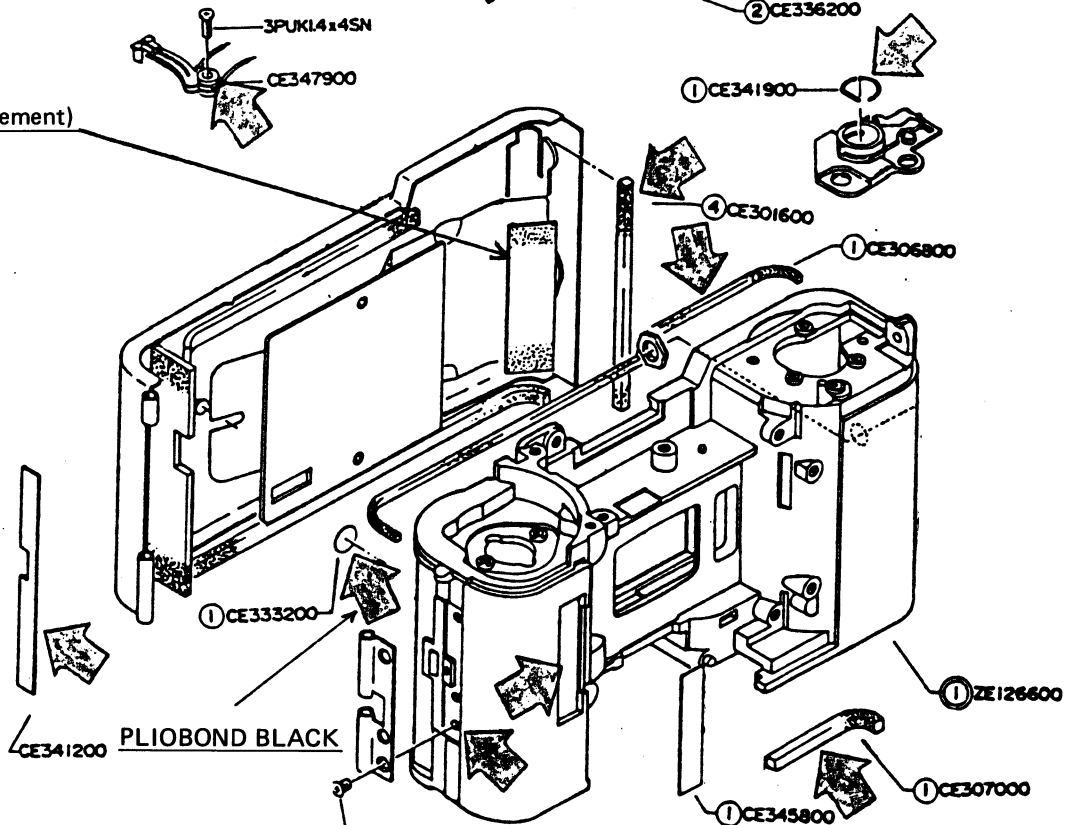
**PARTS WHERE OIL, GREASE, ETC.
SHALL BE USED**

E. PARTS WHERE OIL, GREASE, ETC. SHALL BE USED

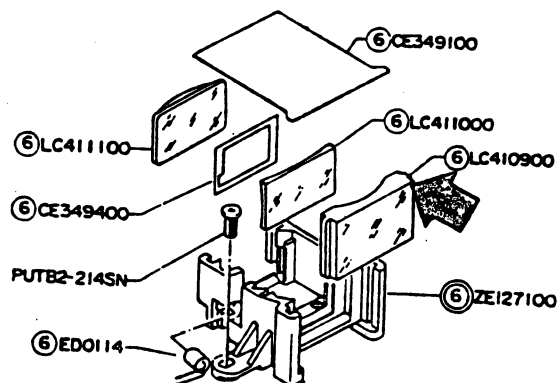
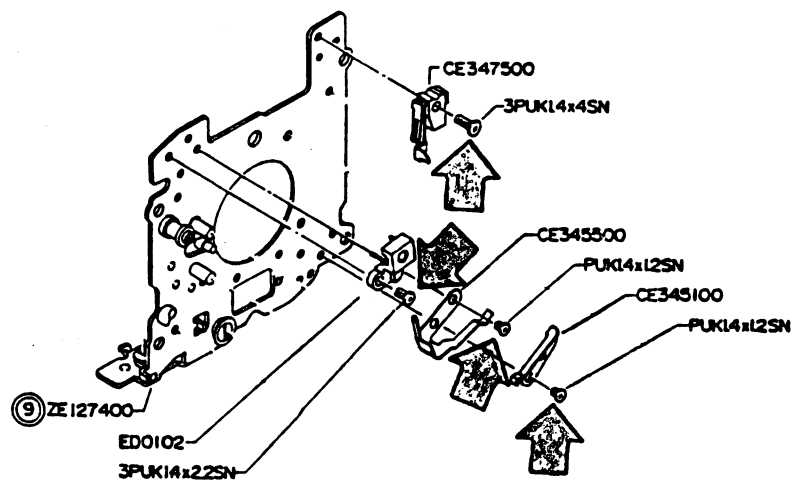
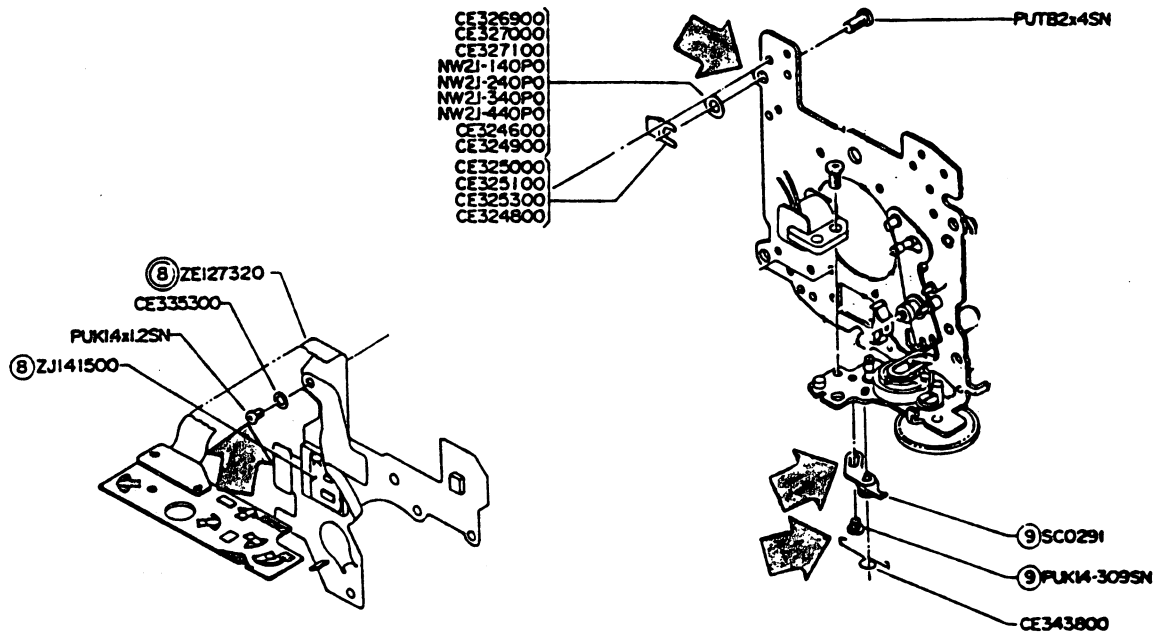
PLIOBOND (Cement)



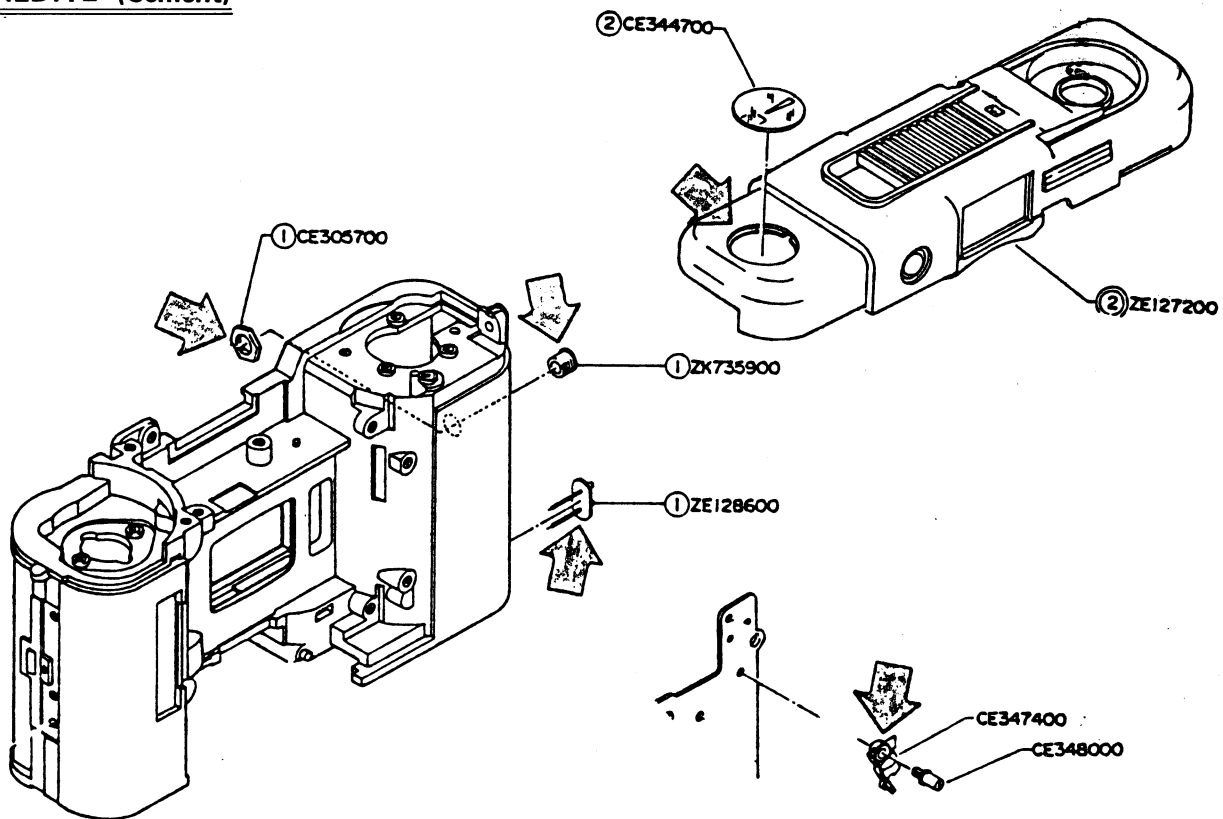
CEMEDINE 575 (Cement)



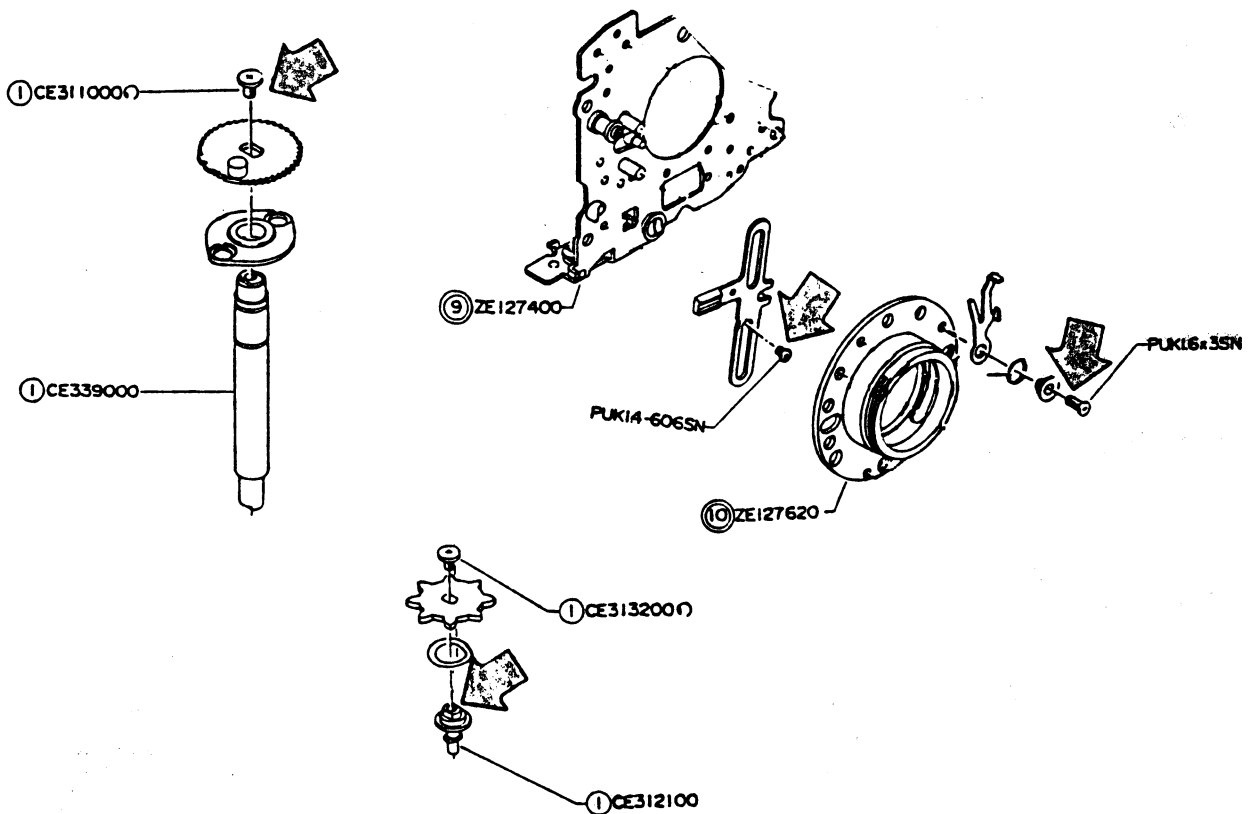
PLIOBOND (Cement)



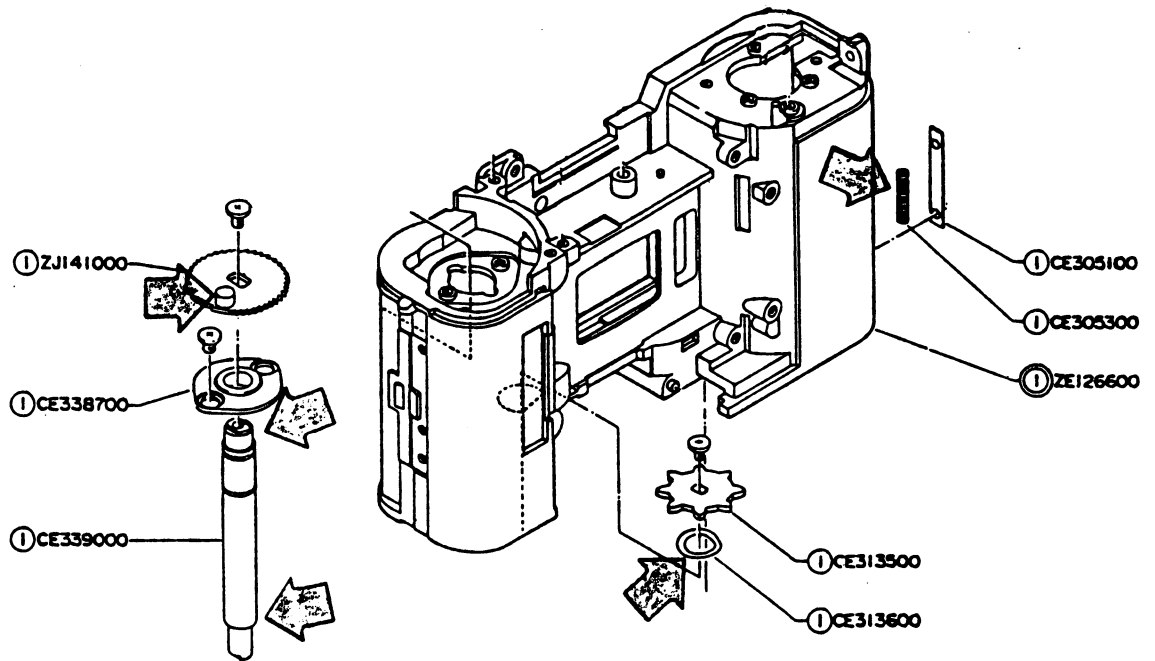
ARALDITE (Cement)



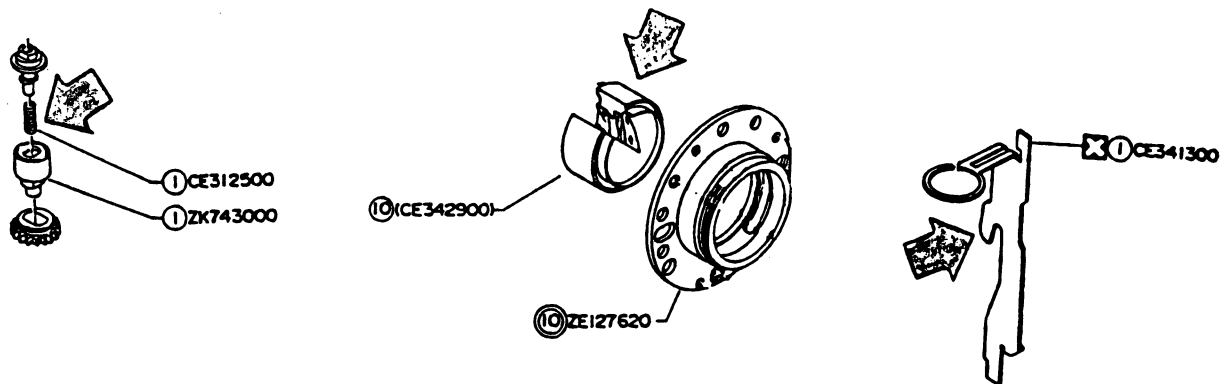
BELL LOCK (Cement)



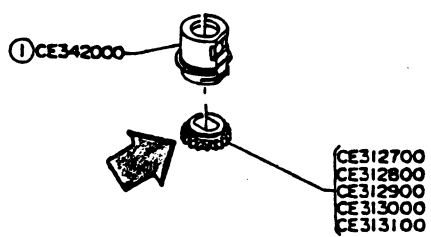
G50 (Grease)



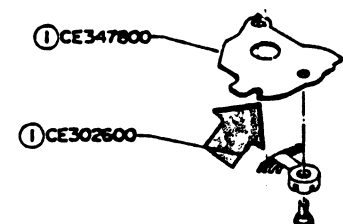
023P (Grease)



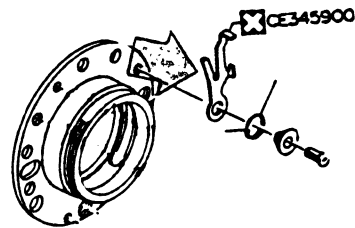
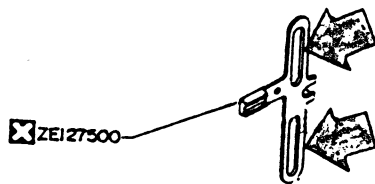
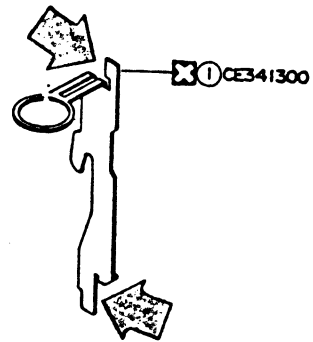
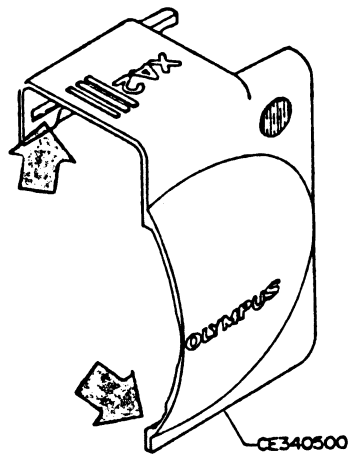
MOLYCOAT GREASE (Grease)



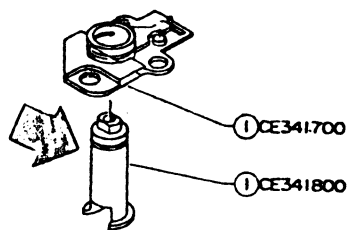
ECHO OIL (Oil)



TUNG MIC



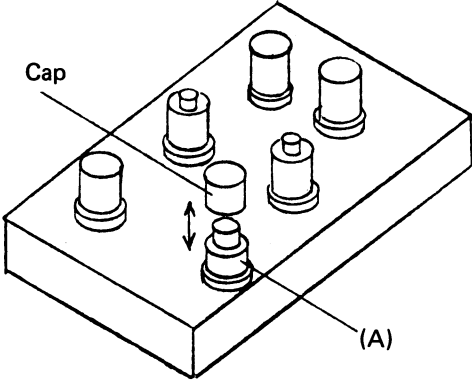
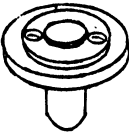
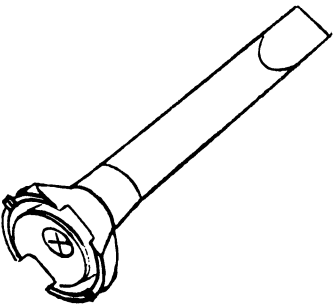
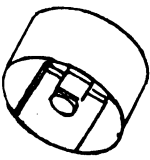
H26 (Grease)

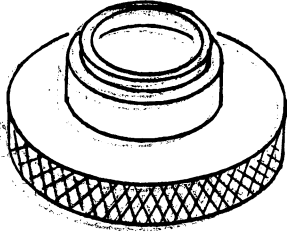


F

SPECIAL TOOLS

F. SPECIAL TOOLS

Name of tool	Purpose of use	Remarks
KC0125 Shutter holder  The diagram shows a rectangular block with several cylindrical pins of different heights. One pin is labeled 'Cap' with a line pointing to it. Another pin is labeled '(A)' with a line pointing to it. A double-headed vertical arrow is shown next to one of the pins, indicating a range of movement or adjustment.	Used for shutter mount. Designed for common use with LEE22 and LEE23 while replacing column (A).	Designed for common use with LEE22 and LEE23
KC0128 d6 jig  The diagram shows a circular gauge with a central hole and a small protrusion at the bottom.	Gauge for measuring size d6 of float lens.	Must not be corroded.
KC-CE3434 wrench  The diagram shows a long, thin wrench with a circular head that has a cross-shaped opening in the center.	Used for removing rear frame.	
KC-CE3456 Focus 2.7 jig  The diagram shows a cylindrical component with a cross-shaped opening in the center, similar to the wrench but with a different internal structure.	Gause for positioning focusing plate at the 2.7 m position.	Must not be corroded.

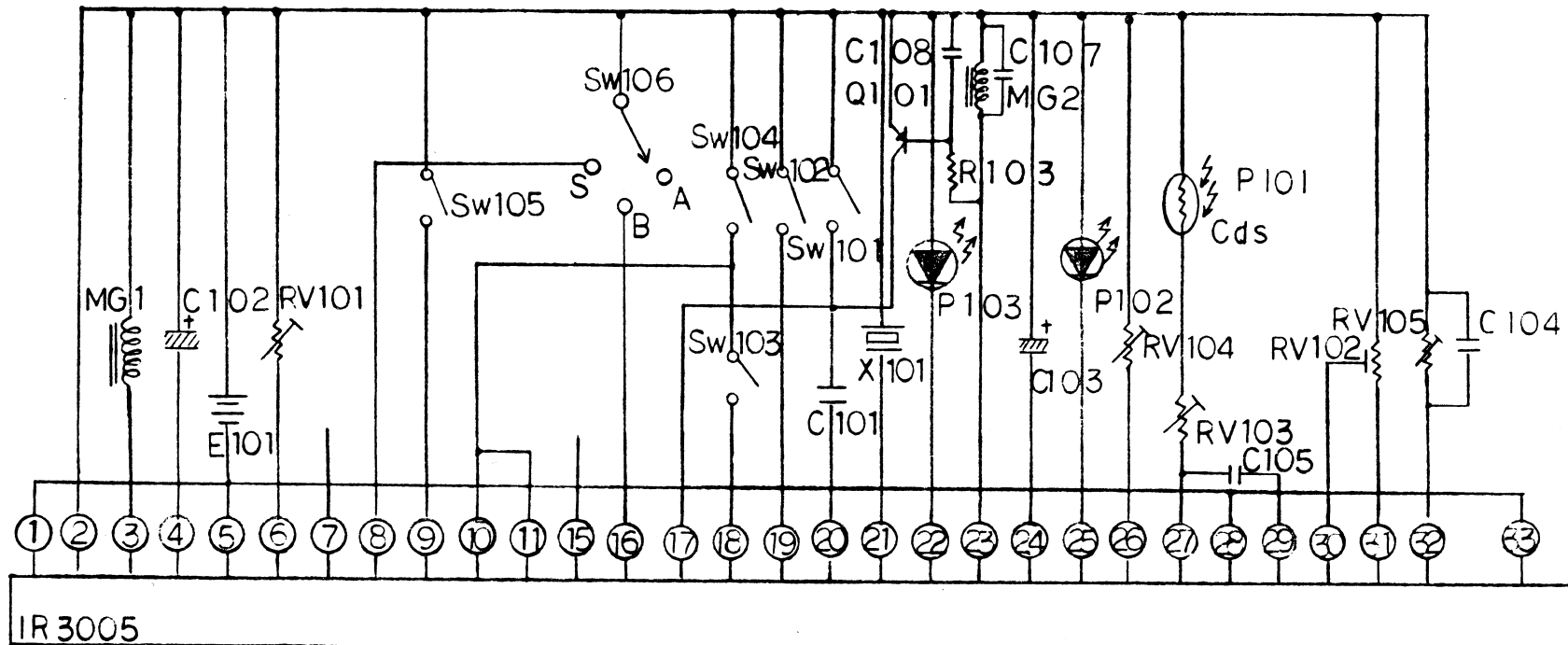
Name of tool	Purpose of use	Remarks
KCOE3196 Lens housing jig 	For checking shutter base plate for its parallelism.	Designed for common use with LEE22 and LEE23.

H

OTHERS

CIRCUIT DIAGRAM OF LEE23

H-1



H. OTHERS

C101	KY0224	IR3005	ES0165	RV101	SW101	Release.Sw.
C102	KY0194	P101	EP0018	RV102	SW102	C.Sw.
C103	KY0199	P102	ED0114	RV103	SW103	U.Sw.
C104	KY0226	P103	ED0102	RV104	SW104	K.Sw.
C105	KY0202	X101	CE3362	RV105	SW105	AS.Sw.
C107	KY0223	Q101	QY0051		SW106	BC.Sw.
C108	KY0224			R103		RY0387 100KΩ

ACTUAL CIRCUIT DIAGRAM

H-2

